A COMPARATIVE STUDY OF POTTERY FROM ARABIA IN THE PRE-ISLAMIC PERIOD 500 BC to AD 600

BY

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ABSTRACT

No overall comparative study has yet been made of the pottery of the pre-Islamic period from Arabia, and the present thesis is a preliminary attempt in this direction, based primarily on the material excavated at the site of Zubaida, Qasim District. Pottery from other sites in the Eastern and Central Provinces of Saudi Arabia, from North and South Yemen, and from Bahrain has also been studied, some by means of publications only but wherever possible through the actual handling of the material. Pottery from South East Arabia has, for a number of reasons, had to be excluded from the study. The pottery has been classified into 119 Form Types and 11 Ware Types, many of which are further divided into sub-types. The Types are discussed under each excavated or surveyed site, the sites then grouped into Ceramic Regions, and each region then discussed separately, to try and establish its ceramic characteristics. All of the pottery from Zubaida is described and discussed in the Catalogue and illustrated by drawings at a scale of 1:4 in the Plates. Some samples of pottery from a number of sites have been petrographically analysed, and are discussed and illustrated in this thesis.

By way of summary, the overall distribution of the different Form and Ware Types is discussed, as well as the similarities and dissimilarities between the various Ceramic Regions of the Peninsula. It can thus be demonstrated that the various regions had, on the one hand, their own distinctive pottery typology but, on the other, were influenced throughout history to a lesser or greater degree by the cultures of their neighbouring regions.

CONTENTS

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Research for this thesis was begun in 1978 during the trial excavation at Zubaida in Qasim District with the help of a scholarship from the Department of Antiquities and Museum of Saudi Arabia.

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A special gratitude is owed to my Saudi Arabian Government and Dr Abdullah H.al-Masri for having given me the opportunity to pursue my postgraduate work.

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ABBREVIATIONS

Sites

Ad.s	Adiat al Sultan
Am.J	Am Jabalain
Am.Q	Am Qurnain
A.Jn	Ain Jawan
Bhr.	Bahrain
Bnn.	Al Banna
F.A.	Fariq al Akhrash
Flk.	Failaka
Grh.	Gerrha
HBH	Hajar Bin Humeid
H.Br.	Hajar al Burairah
HbA.	Haid bin Aqyl
Hrd.	Hureidha
H.U.	Husn al Urr
Kar.	Karish
Kh.	Khuraibah
KZ.	Kheif ez Zahrah
Mkn.	Makainan
Mar.	Maryamih
Msh.	Mashgha
NqH.	Naqb al Hajar
N.H.	Near Hainan
Qrt.	Al Quraiyat
Rb.	Raibun

Sites

Shq.	Shuqa
Sb.	Subr
Th.	Thaj
TW.	Tuwair
Uq.	Uqair
Zb.	Zubaidah

Regions

SWR	South Western Region
ER	Eastern Region
CR	Central Region
N	North
NW	North West

Authors

DB	Brian Doe
DP	Daniel Potts
GCT	G. Caton Thompson
JZ	Juris Zarins
MG	Mohammed Gazdar
PJP	Peter J Parr
UMN	Mohammed Nasir al Uboodi
VB	Van Beck

Publications

AAP	Archaeology in Aden Protectorates, by G. Lankester Harding, (London 1964)
At	Atlal (The Journal of Saudi Arabian Archaeology)
BASOR	Bulletin of American School of Orient Research
FR	Failaka Report. Archaeological Investigations in the Island of Failaka. (Kuwait, 1958-1967).
HBH	Hajar Bin Humeid (Investigations at the Pre-Islamic site in South Arabia) Van Beek, (Baltimore, The John Hopkins Press, 1969)
LD	Looking for Dilmun. Geoffrey Bibby. (London, 1970).
MGBQ	Al Mugam al Giografy Li Bilad al Qasim (Dar al Yamamah publication, (Riyadh, 1979-80).
PSEA	Preminary Survey in East Arabia (Reports of the Danish Archaeological Expedition to the Arabian Gulf 1968) Volume Two. (T.G. Bibby, 1973, Copenhagen).
PSNWA	Preminary Survey in North West Arabia 1968 Bulletin Nos 8 and 9. Institute of Archaeology, University of London, by P.J. Parr, G.L. Harding and J.E. Dayton.
SEH	Social and Economic History of the Hellenistic World, by M.I. Rostovtzeff. (Oxford, 1941).
TMTH	The Tombs and Moon Temple of Hureidhah (Hadhramant), by G. Caton Thompson, (Oxford, 1944).

Convention

No(s)	Number(s)
P	Page
PP	Pages
B	Bowl
BS	Base
J	Jar
H	Handle
I.B.	Incense Burner
Misc.	Miscellaneous
R.d.	Rim diameter
Bs.d.	Base diameter
B.th.	Body thickness
Bs.th.	Base thickness
Cm	Centimetre
MM	Millimetre
M	Metre
Km	Kilometre
RN	Registration number
T	Type
Fig.	Figure
Ex.	Example
Ph.	Phase
I/M	Intermediate
Vol.	Volume
Pl.	Plate

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INTRODUCTION

1. During the past few years wide work has been done in Arabian Archaeology, particularly in Bahrain, Failaka, Qatar, Oman and in the south west, including the comprehensive survey of the Department of Antiquities of Saudi Arabia. (**Fig1**)

Although much of the material still comes from surface survey, and a great amount is not yet published fully, it is possible now to make a first attempt at a comparative study of the pottery of the latter pre-Islamic period (roughly 500 BC - AD 600) of the Peninsula.

The only previous pottery typology study of this period was that based on the material from Hajar Bin Humeid in the south west, done by Van Beek. (1) But even this dealt only with the south western region itself and not the whole of Arabia, since at the time of this work, little was known of the archaeology of the sites of the Peninsula.

The central part of the present thesis is the pottery from the site of Zubaidah located on the banks of Wadi er Rimmah between Buraidah and Unaizah in Qasim district. This site was discovered in 1977 during the Saudi Arabian Comprehensive Survey and was first reported in Atlal 2. (2) Trial excavations were undertaken during a few weeks in the spring of 1979 and a report on these works has been published in Atlal 4 (Peter J.Parr and M. Gazdar pp 107-117, 1980).

The other materials used for this comparative study come from Khuraibah (and Kheifez-Zahrah) (North west Arabia); Tuwair (north Arabia), Bahrain, Failaka, Thaj, Ain Jawan and other unnamed sites in Eastern Arabia; Kharj, Layla-A laj, Wadi Dawasir and al-Fau in Central Arabia; and Hajar Bin Humeid, Hureidha and the sites of Harding's survey in South West Arabia.

Pottery from the sites of Madain Saleh (North West Arabia) and Sakaka and al-Jauf (North Arabia) is not included in this thesis, since so far as it is known at present, it is primarily Nabataean, or Roman, and is more related to Syria and Palestine than to Arabia. For similar reasons, the pottery from Teima and Qurrayah and a few related Midianite sites in the North West is ignored since this also raises problems of interpretation which are more relevant to the Levant than to Arabia.

Material from Qatar, Abu Dhabi and Oman is also not included, since most of the archaeological work in the above mentioned areas is recent and unpublished, and I have not got the opportunity to see it.

It is important to stress that only a very small portion of the Arabian material is published, and even when it is, there are in most cases no complete descriptions. Therefore, it has been necessary to collect the information personally by visiting the related sources such as the Riyadh Museum in Saudi Arabia, the University Museum of Archaeology and Anthropology in Cambridge and Prehistoric Museum at Moesgaard and Arhus University in Denmark. Unfortunately, I have not got the opportunity to look at the material from Hajar Bin Humeid in Washington.

During these visits much of the material was studied and drawn, and some samples were taken (with permission) and later were analysed petrographically.

However, none of the other pottery incorporated into this thesis has been studied in as much detail as that from Zubaidah where all of the nearly 600 sherds recovered from the excavation have been studied and classified individually. Further work on the material from these

other sites may well necessitate revision of the information and conclusions presented here.

2. A Note on Terminology

When the site of Zubaidah was first discovered in 1977, it was assigned, on the basis of general pottery comparisons with better dated sites in North and East Arabia, and of the first C14 determinations, to the "Late Hellenistic" period, a term which, although clearly unsuitable as a cultural designation for this part of the Near East, seemed the only conveniently short and reasonably unambiguous way in which to indicate the few centuries before and after the beginning of the Christian era. Since the primary purpose of the research embodied in this thesis was a comparative study of the Zubaidah pottery, the term "Hellenistic" was also originally incorporated in the title of the thesis. However, as the research progressed it became apparent that the material covered a wider chronological range than had been envisaged, and this was confirmed by the new C14 dates which recently became available from Zubaidah: dates which suggest that the earliest occupation found at the site may date to between the 12th and the 15th centuries BC (see below, p 131). The dates given in the title, therefore, should be understood[1] as giving no more than a general indication of the probably chronological range of the bulk of the material. Further precision will only be possible when much more evidence is available.

3. The Methods of Classification of the Arabian Pottery

There are, in fact, several methods or systems for the classification of pottery and obviously any system that yields chronologically and culturally meaningful results is a satisfactory one. But to decide

upon such a system is no easy task; it must be chosen with great care and it must be applicable to the whole of one's research, if one is to avoid the necessity of its abandonment mid-way through the work on finding that it does not prove entirely suitable. There is as yet, no universally applicable system, but there are some in regular use. There are five major aspects that distinguish the characteristics of a ware. These are:

a. Form (shape of the vessel).

b. Fabric: This connotes the quality of the clay used, the process of purification or levigation employed, the impurities accidentally or intentionally included in the raw paste, and the quality of firing.

c. Method of manufacture: This is the criterion by which the vessels can be divided into hand-fashioned or hand-turned, wheel-made or mould-made wares.

d. Surface finish.

e. Decoration.

Initially, it was thought that a classification based on criterion (b), Fabric, would be satisfactory and all the pottery was, therefore, classified on this basis. Although this classification showed some good results, it was subsequently deemed unsatisfactory because it soon appeared that most of the published pottery from the Arabian sites has an identifiable form but no detailed description of the fabric. It was, therefore, impossible to include such pottery under any classification based on fabric. It was therefore decided, that form would be far more satisfactory as the basis of the major classification. After all, form types can embrace even such pottery as cannot be described in terms of fabric. This system is undoubtedly more suitable for comparative studies and in every way better, because here it is by

examining the form or shape that comparisons can be made and parallels found. This is particularly true for the period under concentration since some of the comparisons are with well-known Hellenistic pottery forms.

Unfortunately, all the pottery from Zubaidah is fragmentary. Not a single complete vessel has been yielded by the excavations * which could give a true picture of the finished article and thus be helpful for the accurate identification of the complete form-type. Therefore, this system of form classification is based on such fragments of rims and bases, as far as the material allows. Through this system, an attempt has been made to reach a general idea or mental picture of the kind of results the pottery may be expected to produce.

First, all the sherds were divided into major categories e.g bowls, jars, bases, handles, lids etc. Then the various shapes within each category were given a serial number, for example, Bowl 1, Bowl 2 and Jar 1, Jar 2 and so on. Then each group being given a type number, for example, Bowl Type 1 and Bowl Type 2 and so on; and then, if the case so required, each type was divided into sub-types, a, b or c e.g Bowl Type 1a, Bowl Type 1b etc. In this way jars, bases, handles and other objects were classified. This system was also used, as has been explained, for pottery from other sites in Arabia, allotting the same type number to similar shapes, irrespective of site; for example, Bowl Type 1 at Zubaidah is of the same shape as Bowl Type 1 at Thaj or at Huraida . If a new type is discovered at another site, that new type is given a new number; thus, as there are 24 Bowl Types

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* Except for two jars (jar 8d Pl. LXXXVII AB and jar with missing base, PL. LXXXVII). Both jars were found during the agricultural activities at Zubaidah in 1977.

at Zubaidah, new types from other sites are given the number 25 and so on, and the same applies to the Jar Type series and Base Type series.

However, this method of pottery classification has the one disadvantage that there are some sherds of various fabrics which are certainly useful for the study of fabric-types and also for comparisons with pottery from other sites, but, because they are simple body-sherds and have no special form, cannot be included in classificatory system on the basis of form. In view of this disadvantage, it was thought that it would be sufficient if the fabric type also was described.

All the pottery has also been classified on the basis of the fabric, mainly in accordance with the type and size of the temper, but this classification has been kept in a secondary position. The main classificatory system on the basis of form has been maintained but instead of numbers, Roman letters are used to classify the fabrics. The major types are given capital letters - Fabric Type A, Type B and so on. Then, if need be, each major type is divided into sub-types Ai and Aii, Bi, Bii, Biii, Biv and so on. This classification is made on the basis of the Zubaidah pottery and arises from the data of the Zubaidah site. A similar or fairly similar type from another site has been given the same letter as that from Zubaidah, for example Bl from Zubaidah and also from HBH or at al-Tuwair. If a new type is discovered at another site, the new type is given a new letter if, and only if, it is clearly different. As A-F and K are the major fabric types at Zubaidah, new types from other sites are given the letters G, H and so on and if there is a new sub-type it is given a new Roman number and so on.

It is important to note that all the sherds have been catalogued on the basis of Form Types in serial numbers, for instance Bowl Type 1

has 3 bowls and given numbers 1, 2 and 3, Bowl Type 2a has 12 bowls, and is given numbers starting from 4 to 15 and Bowl Type 2b is given number 16 and so on, and same applies to jar type series, bases and so on.

All the illustrations have been placed in the plates in accordance with the Form-types and the serial numbers in the catalogue. The description of each Fabric-type from each site is given separately under the fabric type, but the description of each Form type from each site is given separately: in the Form list the Form-type number is given under the relevant Fabric types from each site, so on the basis of these Form type numbers one can refer to the catalogue, list and plate.

Major charts of the Form and Fabric Typology of all the Arabian sites have been prepared for comparisons and on each chart the type series of the vessel has been placed vertically and the sites placed horizontally. Individual Form and Fabric charts for some excavated sites have also been prepared by occupation levels or phases. As has been indicated, the Fabric classification of the other Arabian sites has been based on that of the Zubaidah pottery, but it is well to note here that the matrix of the clay is probably fundamentally similar in most cases, but that the dissimilarities are greater than the similarities in the final products, owing to the local dissimilarities in inclusion of the clay, technique, workmanship, skill and artistry.

It is important to point out that the discussion of the Form Typology of each site individually is not given under the Form Typology as it is in the matter of Fabric; this is because this matter is being discussed in the general discussion of the pottery. Each discussed site and the general descriptions are also given in the Form List

in the end of this text and the reader is referred to this discussion under the Form Types of each site.

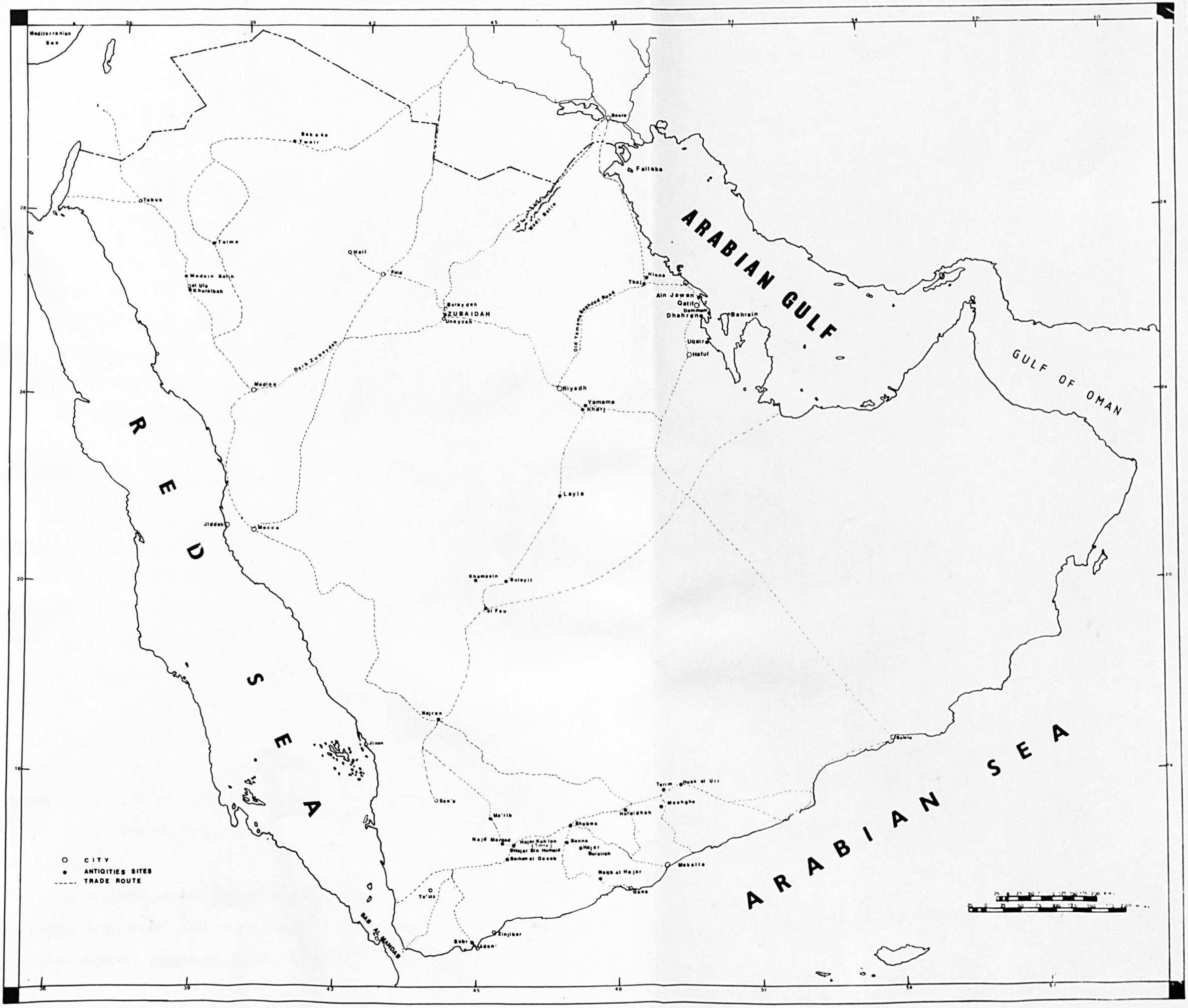

Mediterranian Sea
Sakaka
Turaif
Tebuk
Teima
Hail
Madain Salih
Al Ula
Khuraibah
Faid
Buraydah
ZUBAIDAH
Unayzah
Dahna Sands
Medina
Riyadh
Yamama
Kharj
Old Yamama Dhahran Road
Basra
Failaka
ARABIAN GULF
Hinna
Thaj
Ain Jawan
Qatif
Dammam
Dhahran
Bahrain
Uqair
Hofuf
GULF OF OMAN
Layla
Jiddah
Mecca
Khamasin
Sulayyil
Al Fau
Najran
Jizan
San'a
Ma'rib
Najd Marad
Hajar Kohlan (Timna)
Hajar Bin Humeid
Sanhan al Qasab
Shabwa
Baraqish
Hajar Burairah
Haqb al Hajar
Tarim
Huan al Urr
Masahgha
Huraidhah
Mukalla
Ghaa
Ta'izz
Zinjibar
Aden
Subr
BAB AL MANDAB
ARABIAN SEA
Salala
RED SEA
CITY
ANTIQITIES SITES
TRADE ROUTE

Fig (1)

CHAPTER 1

THE SITE OF ZUBAIDAH

The site of Zubaidah is within the district of Qasim which itself is part of the Najd (Figure 5). In order to study the site and its pottery, it is important to know something of the general environment of the area as a whole.

Qasim lies in the heart of the Najd. It is bordered on the east and south east by the region of Washm and Wadi as Sir, on the south and west by a rocky volcanic region a short distance from Ar-Rass; and on the north and north west by the Ha'il border (Shammer Mountains) (Figure 2).

The main and the most impressive feature of the area is the Wadi ar-Rimmah. (3) A small part of this wadi, from the west side to the upper part, lies in the pre-Cambrian Shield, whilst the largest section, with its tributaries, is a part of the Arabian Shelf. It continues towards the east to the Mesozoic cuesta landscape where a large part of the old wadi area is covered by sand dunes (Nafud al Thuwairat and the Dahna), of the later Quaternary and Holocene period. (Figure 2). Over a long period the wadi filled up with alluvial deposits, and much of the flood plain in the area of Buraidah and Unaizah, including the site of Zubaidah, was covered by sand. The present wadi is about 4 kms wide; water collects here after winter storms and is then dispersed beneath the Nafud al Ghamis and Nafud al Thuwairat.

The sediment on the wadi floor consists mainly of fine elastic clay with silt-sized particles prevailing in the granite regions. In these regions, larger quantities of fine and medium sand can be

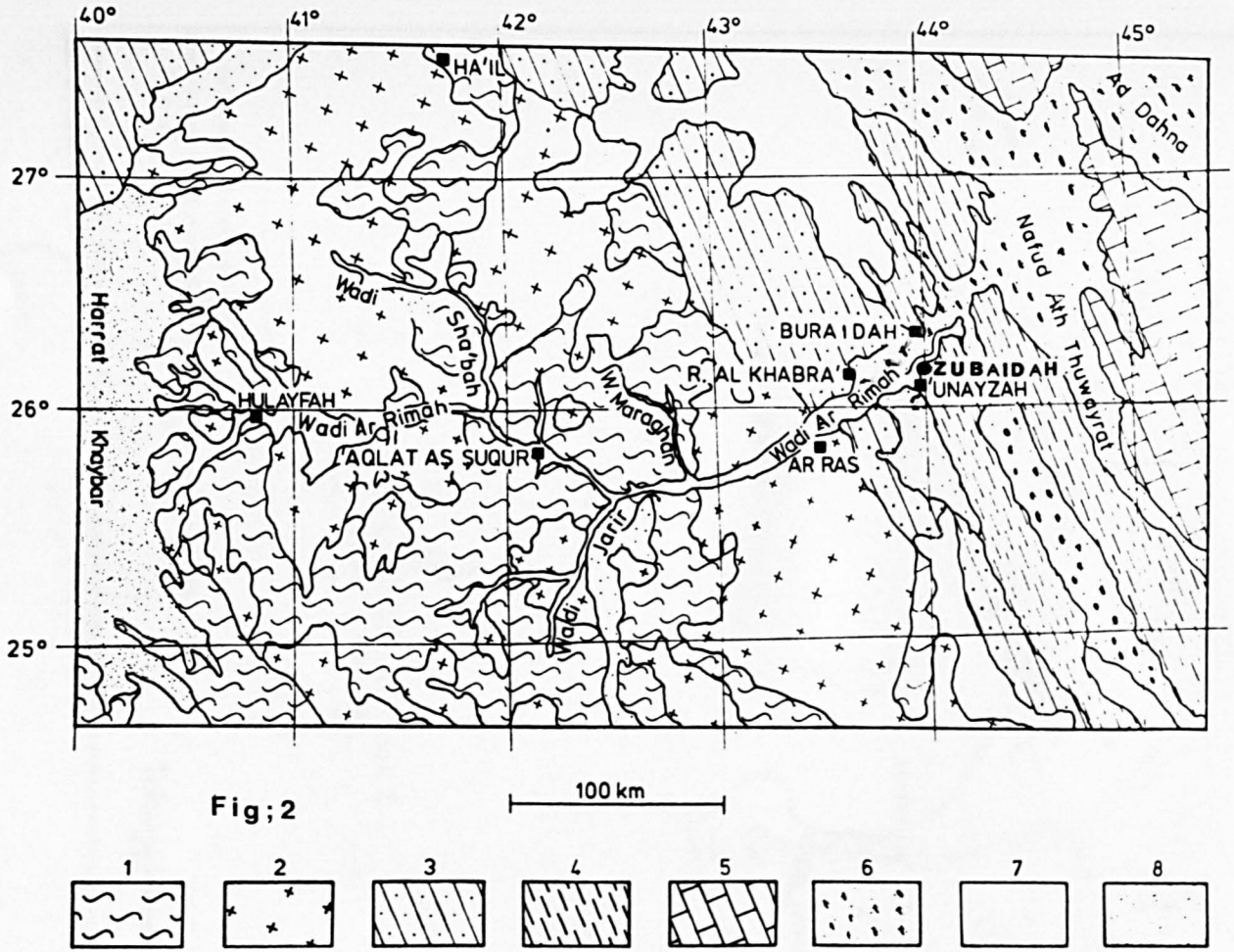
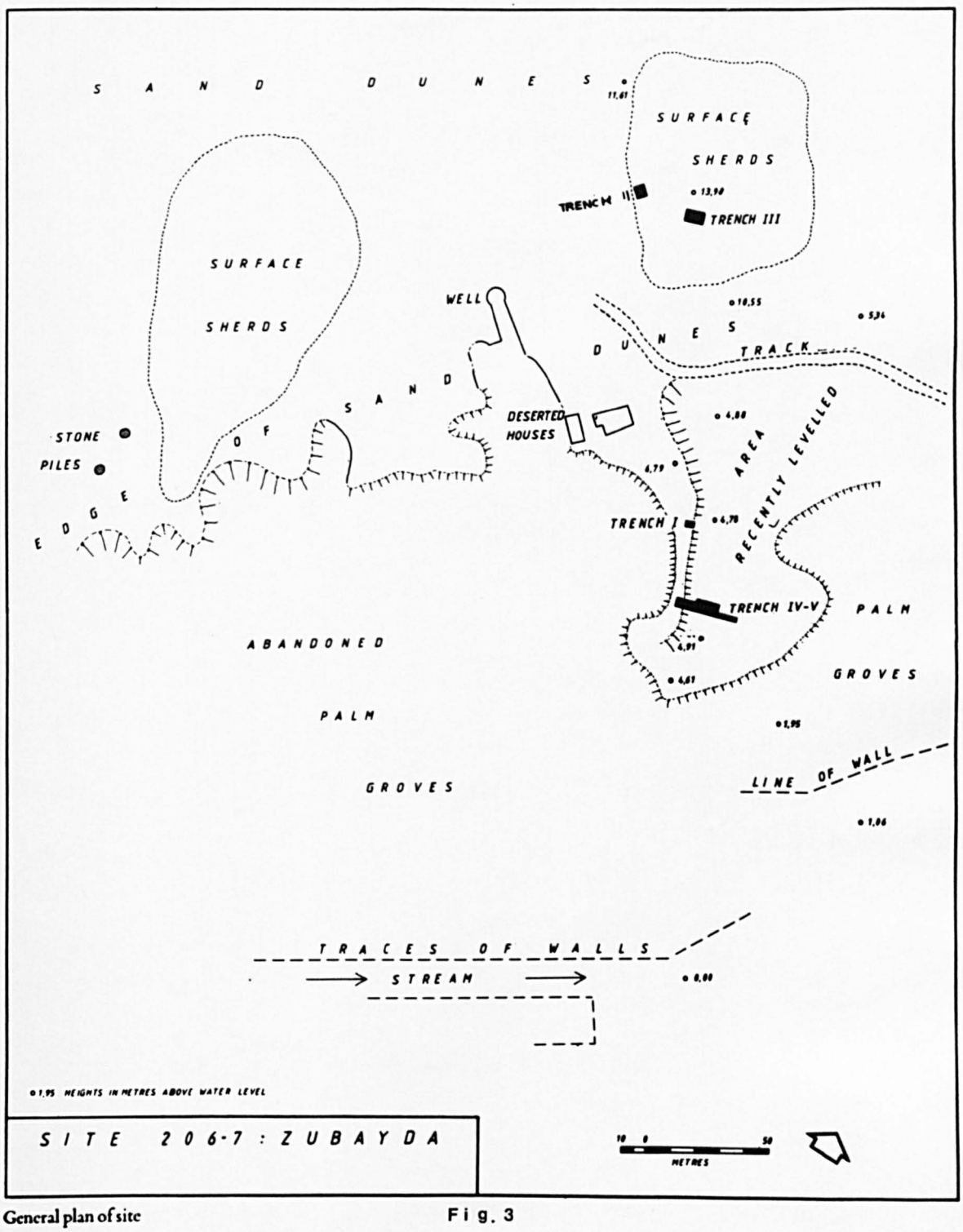


Fig. 56. Geologic map of the discharge area of Wadi Ar Rimah. Generalized after U.S. Geol. Survey and Arabian American Oil Company, 1963. (*1* Precambrian metamorphic rocks, mainly schists; *2* Granite and granite gneiss; *3* Cambrian-Devonian sandstones; *4* Permian and Triassic sandstone, gypsiferous, and carbonate rocks; *5* Jurassic and Cretaceous carbonate rocks; *6* Eolian sand; *7* Alluvium and related surficial deposits; *8* Tertiary and Quaternary basalts



General plan of site

Fig. 3

seen in certain places. In addition to the elastic components, there is also quartz and felspar with small quantities of clay minerals. In some areas, the sediment is covered by a salt crust. Salty clay (Wadi Sabkah soil) is found in the area of Riyadh al Khabra and Unaizah where the main wadi channel is being covered by sand dunes to an ever increasing extent.

Qasim is referred to as a fertile area by both early and recent writers and visitors, and by European travellers and explorers. Al Hamadani, [5] for instance (ninth century AD) described Al Qasim as having many date palm groves and plenty of water, and Ash Sheikh Ubood[6]i also states that many early Moslem writers comment on the fertility of the area and on the delicious flavour of the fruit grown. They also mention running springs of water such as An-Nibba and Al-Qariatain.

In evidence of this, the water in Qasim lies near the surface, and although some of it is slightly salty, there are nevertheless today a large number of date palm groves, orchards and fields. Agriculture is of course totally dependent on irrigation.

It would seem that farming and animal husbandry, involving the care of sheep, goats, camels, horses, donkeys, and probably cattle, were of great importance to the area. The best areas for tillage are amongst the dunes, where rain water is easily absorbed and remains near the surface for plants. There are a number of grasses that grow well and which are well known to the Arabs in ancient times, for instance As Sa'dan, Ar Ribla and Al Qafra. [7]

As far as animals are concerned, the camel is the most important. The largest camel market, not only in the Arabian Peninsula, but also in the world is in the Buraidah. [8]

Al Qisman (the people of Qasim) are famous for trade. Qasim lies

on the Haj caravan route between Mecca and Mesopotamia. The merchants of Qasim travelled to Yemen via the Wadi Dawasir and Wadi Najran routes in order to import coffee and later export it with other goods to Kuwait, Basra, Baghdad and Syria. [9]

Description of the Site

The site of Zubaidah lies directly on the banks of the Wadi Ar-Rimmah about 1 km. west of the modern bridge which carried the road from Unaizah to Buraidah, and 11 kms. from Unaizah itself. (Figure 3). This is one of the most fertile areas in the region and is surrounded by date palm groves and gardens (See Plate LXXVII ABC). From the east and south east of Jadallah Nakheel (Garden) to the south, is an old dried-up stream, (No. C) perhaps related to the ancient site itself, but this is not known as studies were not carried out in this area. To the west is an abandoned palm grove and some disused buildings. To the north are the dunes and to the north west is a large flat area cut out of the alluvium and forming bays. In some places these bays were revetted with rough stone and mud-brick walls, especially near an old, disused well.

During the survey, bulldozing was being carried out in the area to prepare the ground for the planting of date palms. Most of the ancient buildings had been destroyed and much of the property and other remains lay exposed, the deposits being heaped on the eastern and south-western sides of the grove.

The site near the stream has been destroyed by the planting of palm groves. Here and there are many scattered sherds and stones from buildings, but there are some stones in straight lines which may indicate some kind of walling or structure.

Structures on the surface of this site, existed until recent times

and were sent by local people. The local writer Al Uboody [10] describes the site, when he says that this site is a palm grove and spring situated on the north bank of Wadi Ar-Rimmah at the distance of 800 m of the bridge of Buraidah Unaizah Road on the right hand side. He describes it as an ancient city which existed before Islam because of the presence of scattered pot sherds, as traces of what looks like a long street about 40 m in length, with traces of the smithy with its ashes and particularly because of the discovery of a human body in a large jar. He guesses that Zubaidah could be one of the two ancient villages "Al Qaryatan" which belonged to Tas$im and Jadis (very ancient tribes in Arabia) and which tradition placed somewhere in this area. One of these villages was ancient Dhat al Abwab ("place with" gates) which perhaps could be Zubaidah, because the village known during the Islamic history as the recent Al Ayyariyah (ancient Al Askarah), lies just opposite Zubaidah on the other bank of Wadi Ar Rimmah.

An accurate estimate of the extent of the site of Zubaidah cannot be determined, but it is probably some 300 m from east to west [11]. The extent to the north is uncertain because it is concealed by sand dunes which are about 12 m above the level of the plantation. A further 200 m to the north there are again scattered sherds, and since a thorough search of the more distant dunes was not made, it is possible that still more outlying scatters exist.

Thus evidence of occupation is far from clear. The structures which were found in Trench III which are possibly graves are not part of the main settlement, and there is evidence of a still earlier phase of occupation beneath the dunes which must be taken into consideration when estimating the original size of the site.

Investigation has shown that the site was not confined to the northern

bank of the wadi, but also existed on the southern side as well. On both sides of the wadi channel there are lines of standing walls, up to 1.5 m high in places, so that the stream would probably have been confined between the two occupation areas in time of flood. This part of the site was overgrown by vegetation and there were very few sherds on the ground. Mr. Parr [12] suggests that these structures are possibly contemporary with the abandoned palm grove, but as the walls on the southern bank of the stream are definitely earlier than the palm groves it is impossible to say that these also are contemporary with the main settlement.

The Archaeological Works at Zubaidah

The site of Zubaidah was found during the Saudi Arabian Comprehensive Survey inventory in 1977 by the Department of Antiquities and Museums. In the time of the survey, two very small trenches were dug (Trench I and II) [13] (see below).

The site was in the process of destruction by agricultural activity and in view of this, and in order both to obtain a sequence of architectural and cultural material and to investigate some of the environmental aspects of the settlement, it was decided to carry out more extensive sounding in 1979. Therefore, three more trenches were dug (Trench II, IV and V). [14]

The Excavation and the Stratigraphy

Trench I. This trench of sone 2 x 2 m and about 2.50 m deep was dug at the north east site in the main settlement, just near the edge of the abandoned palm groves (See Figure 3). The stratigraphy of this trench revealed five occupation layers, but with only one definite

building phase that associated with the mud-brick structure. The other structural stratigraphy is not clear because of the very limited sounding. After the destruction of this Phase I building, this part of the site seems to have been used as a rubbish dump.

Layer 5 produced a curious three-cornered pyrimidical stand (Pl. LXXVI no. 36), which may be a support from a pottery kiln. This and the presence of the numbers of wasters, suggest a pottery industry somewhere in the vicinity of this area.

Trench II. Trench II about 1 x 1 m and about 1.60 m deep was dug on the northern edge of the site on the gentle slope of a sand dune (Figure 3). This trench revealed no building structures. The lower part of the trench provided important evidence for the earlier history of the site of Zubaidah.

The stratigraphy sequence indicated the presence of two major phases of occupation here, the lower (the earlier) represented by two distinct layers of grey ashy earth associated with a few very coarse pottery sherds of a very different type, the upper by what was probably a stone-lined grave associated with the standard pottery ("Hellenistic"). These two major periods were separated by 8 cm of clean wind-blown sand, on the surface of which there was evidence for a buried soil-line.

Trench III. (8 x 2 m and about 3.60 m deep). Trench III was dug nearby Trench II on the upper slopes of the sand dunes overlooking the site from the north. This trench revealed two major Phases separated by an intermediate Phase.

Phase 1

Phase 1 is the earliest phase found in the lowest layers of this Trench III, consisted of a succession of layers of different coloured sand, varying from grey through pink to purple. All had clearly been subjected to intensive heat and all contained many patches of black ash, pieces of slag and fragments of coppor or bronze, including some small round pellets, all these evidences indicate of copper/bronze metallurgical activity of some sort. A thick mass of stiff grey clay was thought to be a low wall or kerb. If so, it could be some sort of surround for a pit or working area.

Intermediate Phase

The desertion of the early Phase 1 was followed by a period of abandonment (intermediate Phase) in which soft reddish sand accumulated to about 1-1.25 m in thickness and is represented by layer 3 with several minor surfaces slightly harder and grittier than the main body of the sand. (See Section 2 and 3 in Plate 71 in Appendix). Within these surfaces several black ashy lenses occur, which are taken to be the vestiges of burnt bushes. They and the minor surfaces, are evidence for a series of stages in the accumulation of the dune.

Phase 2

The intermediate Phase is followed by Phase 2 and is represented by a rectangular structure built of yellowish-grey mud brick which was erected on the surface of the dune (Layer 3) (See Appendix, Plate 71, Section 1). Nothing of the super structure has survived. Several fragments of mud brick of very much the same

appearance as the brick of the structure occur in the layers 1 and 2 and perhapd these fragments could be of this building. The function of this building is obscure, but as it suggested by Mr. Parr, it may have been a "Watch Tower".

It seems that after the abandonment of this building, the foundation and the ruins were covered by the deposition of sand (the present dune).

Trenches IV - V. (20 x 1-5 m and about 1-3 deep). Trenches IV and V form together one area of excavation towards the southern end of the main area levelled in 1977.

In the course of the excavation these Trenches, IV and V, three main phases of occupation and several sub-phases were revealed (See Appendix, Plate 73, south section of Trench IV-V).

Phase 1

This is divided into two sub-phases (See Appendix, Plate 72, Plan A).

Phase 1a

The lower part of Trench IV-V provided important evidence for the earlier history of the site of Zubaidah. Natural soil was not reached however. Phase 1 is the earliest phase of occupation discovered consisting of walls of unbacked brown mud brick (See Plan Plate 71) and Plate 75 in Appendix). A terrace (bench or platform) of beaten clay can be assigned also to this phase. Several occupation layers run between the walls but the interpretation is not clear because of the restricted exposed area in the lower part of the trench.

Phase 1b

In a later stage, after a partial collapse, the walls of 1 (a) were repaired and strengthened by the addition of a wall of the same type of unbacked brown mud-brick as the walls of the Phase 1a. In general, it can be said that in the early history of Zubaidah buildings were built entirely of unbacked brown mud brick and the walls were erected on the sand without any stone foundations.

Abandonment

At the end of the Phase 1b this part of the site was abandoned and fell into disuse. The ruins then suffered a certain amount of erosion. The period of destruction is unknown but it looks as though the ruins were left exposed over a period of time, because of the formation of a hard crystalline crust on their upper surfaces of the brick walls.

Surfaces of the Brick Walls

During this interval, thick deposits (approximately 1m) of sterile sand accumulated covering the ruins of Phase 1 building and, its floors and occupation surfaces.

Phase 2 (Plan B Plate 72, Appendix)

The period of abandonment was followed by Phase 2. Two sub-phases can also be distinguished within this Phase 3.

Phase 2a

Only one of a structure wall of a distinctive greenish mud brick set in brown mud mortar which can be unequivocably assigned to

Phase 2a. This structure is set into the sand which filled the ruins of the Phase 1. Probably one other wall is contemporary with this wall, because it is of much the same material and built as above mentioned wall, though with brown brick as well as green and is on the same alignment.

Phase 2b

In a later stage, after a partial collapse, of the wall of greenish mud brick of Phase 2a, it was repaired by the addition of a wall, and is therefore to be assigned, not to Phase 2a but to Phase 2b it seems.

The other wall of the brown and green mud brick also was repaired by addition of this wall. Therefore both additional walls were assigned to Phase 2b and not to Phase 2a.

Some of the structures and the surfaces belonging to Phase 2b in this part of the trench perhaps have been removed, either by recent bulldozing operations or by structures of Phase 3.

Phase 3 (Plan B, Plate 72, Appendix)

Several architectural remains which can be attributed to this phase are the foundations of the walls, consisting of unworked or roughly worked stones set in a light brown mud mortar. The foundation cut through the debris resulting from the destruction of walls of the Phase 2a.

In the plan (Plan B, Plate 72, Appendix) the stone structures of Phase 3 can be traced over a greater area (approximately 15 x 5 m), than can those of the earlier periods. Two walls of the structures seem to form the long sides of a narrow room or

courtyard approximately 8 m x 2 m in size, having a large area, at least 8 m x 8 m on its north east side.

It is important to point out that only a few layers in Trench IV are assigned to definite phases, while a great number of them are uncertain and not assigned. This is because of the difficulties and uncertainties of interpretation. None of the layers of Trench V (which is the higher part of Trench IV) are assigned to any phase, because they mostly appear to be disturbed by the recent agricultural activity in the area. Some layers in Trench IV are assigned to phases but only doubtfully and these are marked by a question mark in the tables 1-5 and in the provenance list, below.

Provenance List

Trench	Layer	Phase
I	1	
	2	Assumed to be of the
	3	latest period
	4	of the site
	5	
II	1	2
	2	2
	3	2
	4	1
	5	1
	6	1

III	1	2
	2	2
	3	Intermediate Phase
	4	1
	5	1
	6	1
	7	1
	8	1
	9	1
	10	1
IV	14	3
	16	3
	16a	3
	19	3?
	20	2B
	21	3
	22	2B
	24	2A?
	26	2B
	28	2B
	36	2A
	38	3
	39	2A
	41	2A
	42	2A
	43	2A
	47	2A
	48	2A

49	2A
50	2A
51	1B
52	1A
53	1B?
54	1B?
59	1B
60	1B
61	1A
64	1A
65	1A
66	1A
68	1A
69	1A
70	

The Reliability of the Zubaidah Pottery

Although Zubaidah is a large site, and gives the impression of being an important one, by its scattered potsherds and its ruins, and although the pottery yielded by the excavation was indeed largely associated with the building structures and the occupation levels, it seems that accurately datable material is by no means easily discoverable, and that it is in fact not as reliable as might have been hoped, for the following reasons in particular.

1. First of all, the excavated trenches were of very limited extent. The main reason for this was that the time available was very short, a very small and completely inexperienced workforce was employed and rather less work was done than had been expected. The other reason for

the limited excavation was the unstable nature of the sands, which made it impossible in certain areas to dig further down than about 50 cm without the wall of the trenches caving in. For example, by the end of the 1979 season, a depth of c 3m had been reached in a restricted area in the centre of Trench III but only by sloping the sides and by supporting them with a retaining wall of concrete blocks; arduous operations which took up a great deal of the available time.

2. Secondly the excavation itself was largely in the nature of a training excavation.

3. Thirdly, the accuracy of the stratigraphical elements was in doubt. This again, was due to the smallness of the excavated areas, particularly at the bottom of the trenches where these areas became progressively smaller, causing problems for the interpretations of the layers and for the determination of the true nature of the buildings; sometimes indeed the small exposed areas did not produce any artefacts whatever.

4. Fourthly, neither the excavation nor the surface collection in either season yielded the imported black glazed pottery as found at Thaj and Bahrain. Accordingly, the position is that the only satisfactory for the dating of the Zubaidah material is C14.

The Pottery from Zubaidah

The most obvious aspect of the Zubaidah Pottery is the paucity of its excavated examples. Thousands of pot sherds lay scattered on the surface of the site, but the excavated sherds here are probably very much fewer in proportion to the surface sherds than at any other excavated site in the Arabia. The sherds selected from the bulk of the Zubaidah pottery for classificatory purposes number 587, but of this total number, 413 were yielded by the actual excavation and the rest, i.e. 176, are

from the surface collection. These latter are included in this study to ascertain, or if possible complete, the sequence of the pottery throughout Zubaidah's history. Except for a few, all the sherds are rim or base sherds, the few exceptions being handles with body sherds and pottery objects. Only one complete jar (Plate LXXXVI A and B)and the other semi complete jar were found during the agricultural activities. (See Tables 3B and 4 for the distribution of the sherds by phases and levels in each Trench). The majority of the sherds are in fact of bowl rims - 51% while jar-rims amount to only 15-50%.

All the excavated pottery came from the occupation levels of the different phases, but the amount differed from phase to phase and from level to level; thus some of the levels yielded only one or two sherds. It is important to realise at this point as it has already been mentioned, that the excavated area at Zubaidah was relatively limited and this fact clearly limited the amount of pottery, so that one cannot depend on the figures given above having a more extended significance. However, the amount of material investigated is not in itself an unreasonable foundation for the study of Zubaidah pottery, and is about enough to give some general ideas and perspectives regarding the pottery types throughout Zubaidah's long history.

Technique

Method of Manufacture

Before studying individual types of ware, it is useful to look at the methods of manufacture and technical qualities of the pottery as a whole.

The majority of Zubaidah pottery so far studied is wheel-made, only about 7% being found to be hand-made. Phase 1 pottery however, is

entirely hand-made, whilst the pottery of Phases 2 and 3 is mainly wheel-made, although some of the pottery of these phases from the later occupation levels is also hand-made.

Large vessels are not necessarily hand-made; there are a great many large jars from Zubaidah made on the wheel. There are equally some examples of small pots that are hand-moulded with a very rough finish (Plate LXXVIII-a). This illustrates the base of a small vessel made by hand. The surface was very rough, so the potter attempted to smooth it by placing a thin slip over it; he did not however, completely succeed. On the outer surface, some finger impressions and lumps of clay have been left. This indicates that the potter did not use a rag or piece of wood or bone to smooth the surface but depended entirely on his hands. Plate LXXVIII-b is a section of the same base illustrating an irregular surface because it is hand-made.

As has already been mentioned, the excavation at Zubaidah yielded no complete vessels, only fragments, so it is difficult to say whether the large jars were manufactured in separate parts and fitted together after being dried, or whether they were built up in one piece.

With regard to rim thickening, whether on the exterior or interior, the potter at Zubaidah seems to have used the both techniques of coiling and folding. Some externally or internally thickened rims were made by adding a coil to the plain rim of a vessel. Plate LXXVIII-c shows the rim of a large storage jar which had been produced by folding its first sample rim inward slightly (the arrow) and then adding a coil of about 3-8 mm thick to the inside. The joint was disguised by the application of slip on the inside and on the top of the rim. A tell-tale hairline crack in the section (the arrow) indicates the addition of the coil.

Another method of thickening was to fold over the rim of a bowl, for instance, until it touched the outer surface without adding any more clay. Plate LXXVIII-d, illustrates the rim section of a deep bowl with thin walls whose rim was made in the manner described above. The rim was folded with such care that it is difficult to see the curving joint. However, a hole was left in the middle of the rim section, which indicated folding; other evidence being that the thickness of pot around the circular hole was equal to the thickness of the wall of the bowl, i.e. about 5 mm.

Sometimes rims were simply everted or by pressing from both sides and at the top as well to form an over hanging rim (Pl.LXXVIII-e).

With reference to manufacture, some pots were found to have grooves either on the inside or outside, in a single row or multiple rows. This seems to be proof that they were rotated by hand producing a straight plain groove made by the finger. More rapid rotation on a wheel would have produced spiralling grooves on the inner surface, but nothing like this was found.

Some of the vessels were made by "pressing" where the clay was not rotated during the process. This method was suggested by Dr. H.W. Webb during his study of the Huraidha pottery.[15] By this method the clay mixture was simply put into a mould of the correct shape probably made of wood or stone, and then pressed by hand against the inside of the mould to produce the required shape. Evidence of this method of manufacture are the finger imprints on the inner surface which occur from the pressing of the clay (Plate LXXIX-a-d). Other evidence is the comparative smoothness of the outer surface, because the moulded surface is smooth. For the comparison of both surfaces, see also Plate CXII-b. The outer surface is smooth, the inner surface has fingerprints.

During the finishing, most of these impressions were smoothed out, but sometimes this work was not done properly, so the surface is half smooth and half has imprints , perhaps because of hurried or sloppy work by the potter (Pl. LXXIX-e).

The sides of vessels built-up by hand-moulding, coil or ring-building, may be considerably heightened during the forming process by the use of a rib for scraping the excess clay, as long as the clay is adequately plastic. Pottery made of less plastic clay can be made taller by beating the outer surface with a flat tool (paddle or beater) while supporting the inside with the hand or a smooth stone (anvil). Only one vessel has so far been found at Zubaidah illustrating the use of this technique. Pl. LXXX-a shows the base of a vessel produced by this technique, perhaps hand-moulded and then made taller by using a flat beater on the outer surface. The potter probably also used a rib and scraped the excess clay horizontally on the outer surface and also below the flat base. Both impressions can be seen on this above mentioned example but the rib impression is clearer than that of the beater.

It would appear that the body and base of the above mentioned example were made from one lump of clay. There is no joint or any other evidence of pieces (see section of the base in the same Plate no.b ·).

As usual, the handles, spouts and pedestal bases were made separately by hand and then attached to the vessels, probably by adding semi-liquid clay to the surfaces to reinforce the joint, either before the surfaces of the two parts had dried, or after remoistening them. The clay added to these joints is usually welded and smoothed by special ribbing tools made of wood, bone or terra

cotta and then coated with a slip. Occasionally, the joints were welded incorrectly so that the pot broke and the attached piece separated cleanly from the vessel itself (Plate LXXX-e) illustrates a cleanly broken joint, with the clay paste which was used as cement. Plate LXXX-d shows a cross section of the base of the same vessel with a clean joint which indicates that the ring was made separately, and also shows the red firing (the light grey in the photo) which surrounds the black core. If the base had not been made separately and a clay paste not added, the broken area at the top of the ring would have had a black core also and not a red firing. Plate LXXX-c shows the foot of the pedestal of the above mentioned example.

Another good example is that of base (52) and (Pl. LXXXI -a) illustrates a clean joint with a crack in the cross-section (between the two arrows) which separates the two pieces. The clay of each section is slightly different; that of the pedestal being slightly gritty, somewhat friable and more porous with numerous air-holes, while the clay of the main body is harder with fewer holes but some chaff impressions.

It would appear that the lowest part of the jar body (the bottom) was also made separately. Plate LXXXI-b shows another joint from the upper surface which was attached to the main body of the jar.

The bottom of the jar seems to have been made later than the pedestal, then attached to it and finally to the main body. This is shown by the fact that the bottom had not dried completely when the jar was placed in the kiln, as the outer surface of the jar-bottom has shrunk more than the pedestal. Also, on the inner surface there is a very thin crack.

Finally, a strange, small body sherd was found in Phase I Trench III.

According to the type of pottery found in Phase I of this trench, this piece should have been of Type A - coarse with large white grits. However, it is of relativelyless coarse clay, probably sandy marl and had been vitrified from inside from overfiring (See Pl.LXXXII, No. a) the shining surface). The strange feature of this sherd is that it seems to have been layered with clay twice and each time coated with a yellow-cream wash. Perhaps the vessel was first formed and coated with wash, but because of its irregular outer surface before or after drying was coated again with another layer of clay, this time thinner. The main body layer is 0.7 mm thick and the thickness of the clay layer is between 1 and 2 mm. The upper layer is also coated with a yellow-cream wash. (Plate LXXXII-b).

It seems that small vessels (both wheel and hand made) probably were removed from the place where they had been formed by running a string underneath their bases in order to dry them. (Plate LXXXI - c and d). The potter did not smooth the underneath of the base after this so that it was left with a string impression.

A red-burnished base is technically a unique piece, because it seems that at the time of manufacture a hole was left at the bottom of the base about 4 cm, in diameter. Later the hole was filled with a piece of clay in a disc shape and then coated with slip on the upper and lower sides. After the pot had dried and been fired, the clay had shrunk and left the joints open. Plate LXXXII c-d illustrates these points and a small disk in the hole can be seen clearly in colours. Plate CVII-a illustrates the different clays; the main body of the pot having a thick black core, while the disc of added clay has been fired red throughout.

Another interesting feature of this pot is an unusual circular

impression. It is not certain whether this impression is of the base or of something else, but its diameter is also about 4 cm . It is difficult to say whether there is any relationship between these two strange features, but a technique seems to be indicated at Zubaidah not known at any other site. The impression could have been caused by a wooden pole or rod used to turn the wheel, or to produce the cavity in the pot; or it could have been accidental. The facts are uncertain but equally strange is the hole in the bottom of the pot filled with clay. Why this was done is also difficult to say. (See Pl.LXXXII-c-d which illustrates the inner surface of the pot with the circular impression and the very thin crack around the circular joint of the disk).

FORM TYPOLOGY

Bowl-types: Plates from I-XX.

Bowls are classified into 24 major types and 25 sub-types: 1, 2a b c, 3a b, 4a b c, 5, 6a, 7a, 8a b, 9a b c d, 10a b c, 11a b, 12 a b c, 13 a b, 14 a b c, 15 a b, 16 a b, 17, 18 a b, 19 a b c, 20 a b, 21 a b, 22, 23a b, 24 and misc. See Table 1 for the distribution of the Bowl-types by phases and levels. The descriptions of the Form-types are given in the special Form-list, see pages from 363 to 407 . See catalogues from p.479 to p.509

Jar-Types: Plates from XXXIV–LIX

Jars are classified into 19 major types and 11 sub-types: 1a b c, 2a, 3, 4, 5, 6a b c, 7, 8a b c d, 9a b c, 10, 11a, 12a b, 13, 14, 15a b, 16, 17, 18, 19, misc. See tables 2, Form-list p. 422 and catalogue p. 520

Base-types: Plates from LIX-LXIV.

Different types of base are found, the majority being of small vessels, probably bowls, and the minority being of large vessels, probably heavy jars, particularly pedestal based jars. Bases are classified into 11 major types and 3 sub-types: 1, 2, 3, 4, 5, 6, 7, 8a b, 9a b c, 10 and 11. Table 3Aa Form-list and Catalogue.

Handle-types: Plate LXVIII Nos 1-4.

Four types of handle are found, 1-4 - Table 3Aa. Form list + catalogue).

Incence Burners: Plate LXXII Nos 1-3.

Only three sherds of incense burners were found, each of them belonging to a separate incense burner, to judge from the shape and the incised decoration; perhaps all of them were square in shape. Two sherds have the complete profile (Type 1), showing the upper part, which is probably square, and the short square foot, while the third is only of the rim (Type 2) (Pl. CXII-a), but the form and the profile indicate that it also could be of the square shape as the other two. See Table 3Aa, Form list and catalogue.

Other Objects

The other finds comprise a spout with a body-sherd (Pl.LXXIII-1) clay bosses, (Pl.LXXIV Nos 1-2), one of them probably belonging to the base of a vessel, and the other a very large one of uncertain function. The other clay object is U-shaped (Pl.LXXIV No. 3 and Pl.LXXXIV ABC), its function is also uncertain, because it is very incomplete; however it has been suggested by P.J. Parr [16] that it could be a piece of tuyère and probably used in the kiln (Table 3 Form-list and catalogue.

Body sherds: (Plates from LXXIV-LXXVI Nos from 1-36)

See also Form-list and catalogue for the descriptions. A more detailed analysis and description of the form typology of the Zubaidah pottery appears later in this chapter in the final discussion of Zubaidah pottery (See page 116).

FABRIC TYPES

The fabric of which pottery is made, is always the result both of the composition of the paste before baking and of the process of baking itself. It is essential at the outset to grasp this, since the pottery has here been divided into seven major types, each of which has been again sub-divided in accordance with the specific character of the fabric. The classification of the fabric was in fact undertaken on the basis of the temper by an exhaustive examination of the pottery surfaces and in particular of a thorough study of the pottery itself. Many of the sherds from Zubaidah (as well as some from other sites), have been petrographically analysed under a microscope, by the thinning of the sections and this section has been classified petrographically.

In the following classificatory system proper to Zubaidah ware, the major fabric types are distinguished by letters, the sub-divisions being given a Roman numeral following the letter. For instance, 'A' represents a very coarse pottery, and 'i' represents a very coarse pottery with large white grits; 'ii' is the same as 'i' but with chaff. Thus, each type is assigned a letter and bears also a numeral denoting a sub-division within that type.

1 Type A Coarse pottery

2 Type B Medium fine ware in different colours

3 Type C Fine clay in red, pink and buff

4 Type D Sandy ware

5 Type E Fine red, sandy ware

6 Type F Cream or greenish-yellow ware (calcareous)

7 Type K Grog tempered ware

8 Miscellaneous types.

With this system, it is possible to show the number of sherds belonging to each fabric type in each phase of each trench and hence to evaluate the percentages of the several types and sub-types which together compose the total pottery of Zubaidah. (See Table 4).

Type A: very coarse, rough, crumbly, gritty pottery.

The Clay:

The basic colour of the clay ranges from pinkish red and pinkish buff to brownish grey and limestone grey. It should be remarked here that the clay is not at all levigated, owing no doubt to some rounded grits.

Firing:

Pottery was fired for the most part in a reducing atmosphere, resulting in a black or grey core or grey throughout: but there are a few examples also which were fired in an oxidising atmosphere, resulting throughout in pinkish red, pinkish buff and brown and grey. Plate LXXXV A illustrates a bowl of this type. White arrow 'A' shows dark pinkish red throughout the upper and thinner part, 'B' shows a thin pinkish brown to grey core in the lower and thicker part, especially in and near the base. Pl.LXXXIII, e, also illustrates a grey core in a thin section. Again, some sherds have on their surfaces grey, black nad brown patches due to faulty firing, perhaps because the potter lacked

the necessary control of the firing temperature (Pl.LXXXIII Nos b and d)

Temper:

Type A pottery is divided into two sub-types:

Type Ai with large white or grey grits.

Type Aii with large white or grey grits and chaff. Basically these two sub-types are the same for the difference between them lies only in the absence or presence of chaff. But the majority of the pottery is of ware Ai and amounts to about 7.15% of the total at this site, while the portion with chaff (i.e. tempered) (ware Aii) amounts to 3.60% (Table 4). Since both sub-types Ai and Aii show the same character in the fabric and in the other techniques, they have been discussed here as one unit "Ware A", unless otherwise stated. Nearly all the sherds of Ware A have large white grits, but occasionally also grey grits as temper. These white, and occasionally grey grits in the pinkish red limestone clay are easily recognised, large grits appearing on the surfaces of all the wares. (See Plate LXXXIII, a b c and d), these large grits are also visible in the cross section (No. e). In some examples indeed, these grits are far too large and are still visible when the surface has been coated with a slip. (No. d). Chaff impressions also can be seen but in less quantities (Nos d, e, f, g).

Some samples of Type A from Phase I of Trenches III and IV have been petrographically analysed after thinning the sections. Plate CXVII No. a of sample 6 clearly illustrate the pinkish red or grey matrix of limestone, which included large grits here referred to as "crystalline" calcite grits or as "rhombic" grits with sub-angular and sub-rounded corners, ranging in size from 0.2 to 3.0 mm and in exceptional cases up to 5.0 mm.

It is still uncertain whether these grits were added to the clay by human hand or whether they occurred therein naturally: but in view of the sub-angular and sub-rounded corners, it may, we think, be suggested that the grits were first crushed and then added to the clay intentionally.

All things considered, it seems very likely that the use of grits as a temper was the regular feature of the early phase pottery of the Zubaidah site, and that the use of chaff for this purpose was much less common. If this is so, the explanation may conceivably be that the early pottery of this site always turned out to be very coarse, owing to the fact that the large grits proved impossible to crush sufficiently and that accordingly, it seemed to the potter unnecessary to add chaff as well.

All the Type A pottery is hand-made, probably in one piece, as most of the sherds are from small vessels, especially medium-depth bowls with plain, simple rims. (See Plate of Bowls, 13, 14, 15 (T.2), Bowls 42, 44 and 45 (T5) Bowl 52 (T7) and Bowl 72 (T96). Only one sherd is from a jar (Jar 68T11a). It is the sherd of an out-curving rim, slightly flattened on top (Plate LXXXV C) and is relatively large. This jar was probably made in one piece, no coils or rings being visible in the cross-section. An instructive example of a hand-made, but now broken Bowl 52 (the base is still intact), was found in the Intermediate Phase Trench III. This bowl, no. 52 is a deep one with flaring sides, simple rim, flat base and somewhat pronounced edges (Plate LXXXV A B). Here clearly the base was produced by coiling to form a flat bottom and pronounced edges, and the joints, in cross-section are clearly

visible.

In this Type A also occur a handle 4 Type 4 Pl. LXXXIIIg and Pl.LXVIII No. 4 and a u-shaped object, PL.LXXXIV a b c and PL.LXXIV No. 3.

The surfaces are commonly buff, pinkish red, dark red or brownish grey. Some sherds have merely been smoothed on both sides, while others have been coated with a grey or brownish-grey slip over the pinkish-red firing. Some have a slip on the outer surface, the inner surface having merely been smoothed, while yet others have a slip on both surfaces and have been fired the same colour on each. There seem to have been no discoverable preferences in the arrangement of colours and the choice of the colour is not necessarily determined by the firing colour of vessel; in other words, a pinkish red slip on a pinkish red firing (Bowl 52 Pl. LXXXV-A) or a light pinkish buff slip on a pinkish buff firing (Pl. LXXXV-c) are by no means typical. Moreover all the vessels of ware A are undecorated, no burnished or decorated examples having been found.

Type A pottery is, on the whole, very primitive, as we have seen; it seems that the potter still lacked an adequate knowledge of and skill in the manufacturing, firing and surface finishing processes, since all the Type A vessels come from the early Phase (Phase I), and are all simple (sometimes crude) vessels, produced by a simple technology.

This type in fact represents only a very small portion of the total Zubaidah pottery (amounting to a mere 10.75%.)

For the number in each phase of each trench and the total number of this type at Zubaidah (see Table 4). This pottery (i.e. Type A) was indeed the only pottery found in this phase, and is associated with the so-called Metallurgical Installation. It also comes from

Phase I of Trench II and from Phase 1a of Trench IV. In Phase 1b of Trench IV however, some sherds of what we shall call standard pottery were associated with this ware (i.e. ware A). One thin sherd of ware A was also found in the upper level, level 15 of the uncertain phase.

Type B: medium fine standard pottery.

The majority of the pottery from Zubaidah is of ware B. It predominates in all the levels of phases 2, 3 and all the unphased levels of all the trenches, and amounts to about 72.51% of the total pottery from this site. (Table 4). The majority of this pottery came from the phases 2B and 3 of Trench IV and from the levels 1, 4, 10, 13 of Trench IV; from level 17 of Trench V; from levels of the uncertain phase from Phase 2 of Trench III and from the surface collection of uncertain phase, and hence it seems that this type of pottery is from different levels, in different trenches and of different Phases. The majority of it is fairly homogeneous and self-consistent, both in shape and fabric; nevertheless.

The matrix of the clay in this ware is on the whole, the same, though there are of course, some minor differences, chiefly due to the quality and the size of the temper. This ware (Type B) can thus be divided into classes; but before we distinguish these classes, it is essential to point out that the differences did not arise in different phases and different periods, nor is classification based on periods or phases. The differences due to the temper can be seen in vessels of the same phase, and in fact do occur in all the major occupation levels of the site. All the pottery of Type B from Zubaidah has therefore been treated as one unit, and classified solely according to the quality, the quantity and the size of the

temper.

Type B - medium fine ware in different colours and has thus been divided into five sub-types as follows:

Type Bi chaff temper only

Type Bii mixed temper, chaff and small pieces of grit

Type Biii mixed temper, chaff and large pieces of grit

Type Biv small pieces of grit only

Type Bv large pieces of grit only

Type Bl: chaff temper only

This temper predominates in all the levels of Phases 2 and 3 of all the trenches and is found in no less than 25.55% of the total pottery from Zubaidah (Table 4). Chaff means here chopped grass or straw, the pieces ranging in length from 0.5 to 1.0 cm but can even be as large as 1.5 cm and in point of fact, the amount of chaff contained in the sherds differs considerably; in some sherds very little chaff was found, while in others there was a good deal. Chaff impressions can be seen in Pl. LXXXVIII no. a, illustrates the chaff impressions on outer surface Jar 2, and nos b and c illustrate chaff in the cross sections of Jar 2 and Bowl 76. Pl.LXXXIX no. e illustrates a deep and wide impression of a reed or large wide chaff at the top of the rim of the Jar 48 (see the arrow). Some samples of this type (BI) have been examined petrographically, in order to ascertain the composition of the temper (Pl.CXVIII no. a, Sample Z- 57).

The Clay:

The basic colour of the clay is red, brown, greyish buff or grey; and the clay itself is always well levigated in this sub-type .

Firing:

The majority of the sherds were fired red on both surfaces,

but some were fired brownish-red, orange, grey or buff. About 75% of the vessels had a black or grey core and were fired in a reducing atmosphere.

Pl.LXXXVIII, c, illustrates a thin core in the cross section, Pl.LXXXIX c and d illustrates a thick grey core in a cross section of Jar 7, while 25% were fired in an oxidising atmosphere (Pl.LXXXIXa)

Some of the vessels were distinctly over-fired and are therefore twisted, owing to the bad firing Pl.XLV Jars 80 and 81 and Pl.XC - no. a and b shows a pile of twisted, wasted bowls.

The majority of the vessels of this general description are wheel-made; these amount to 87½%. Hand-made vessels amount to 12% only of the total of Bl. Furthermore, the majority of the vessels were demonstrably made in one piece, except for some heavy jars and some basis of others. Pl.LXXXIX-f shows traces of the coiled rim in thin sections of a heavy jar (J/48).

The most common colour for the slip is dark red to dark brown, but ranges from buff, light red, dark red, reddish brown to dark brown, black and grey. Most of the vessels have a slip on both sides although in some the slip is restricted to one side only. Pl.CIV No. Ba (Bowl 76) illustrates a reddish-brown slip or wash with grey patches on the black slip and B/146 shows dark brown slip, Pl.CIX. no. d (B/148) shows dark grey slip and Pl.CVI no. d shows a black slip. Some of the examples have white, grey or greenish grey wash on outer surface and brown wash on inner surface , see Pl.CVI nos a and b.

Only two burnished sherds of this type have been found so far and they were burnished all over in red on the inside and in dark red on the outside. It is unfortunately not possible to determine if the strokes used were horizontal or vertical. Plate CVII no. a illustrates

light red burnishing Bs/10 and no. c. illustrates a dark red burnishing (B/9).

We need to be reminded at this point, that most of the decorated vessels of the so-called "incised and painted" style of Zubaidah fall under type Bi, but even so, the great majority of the vessels of Bi type are undecorated. The decorated styles will be discussed later under their appropriate variety of decoration, so it will not be necessary to list all the details here. However, it is worthwhile mentioning the main varieties of decoration very briefly. The decoration of Type Bi is in two forms, incised and painted.

Incised: This can again be readily divided into two types:

a. Incised designs in straight, wavy and horizontal lines, and checks, eg incised impressions, finger and thumb impressed designs, thumb-nail and crescent shaped impressed designs. (See Pl.CIX nos c f, Pl.CXno. a,Pl.CXI a and g, Pl.CXII no a and Pl.CXIII-a.

b. Incised inscriptions of two letters Y I (Pl.CXII no. b).

Painted designs; these occur in horizontal bands in black, green and brown in Pl.LXXV nos 10-11). Black painted tokens Pl.LXXV 12, 13, 14 and Pl. CXVI nos b c d.

There is also a group of sherds which have a band, 1 cm below the rim, on the outer or the inner surface, or on both, in red or black paint. (See Plate CXIV Nos. c, d, f and g).

Type Bi represents the following Form Types:

Bowl - 1,2a,4b,c,5,6a,9a,b,c,10c,11a,b,12b,13a,b,14a,c,15a,b,18a,19b, c,20a,21a,22,23a,b and mixc.

Jar: 1a,2a,3,4,5,6b,8a,b,c,d,9a,b,10,12,13b,14,15a,b,17.

Base: 2,3,6,7,8a,9a,b,

Handle, Lug, Incense Burner.

Type Bii:

This ware of temper consists of chaff blended with small pieces of grit in a paste of fairly well-levigated clay. Such a temper is found in 31.50% of the total pottery from Zubaidah, and predominates in all the levels of the latest Phase 2 of Trench III and phases of Trench IV. Table 4 shows schematically the distribution of this temper in each phase of Zubaidah. The chaff in this case is commonly chopped grass, the pieces mostly ranging in length from 0.5 to 1.0mm but some being very large, i.e. up to 2 cms, while the pieces of grit are of different colours, white, red, black and grey. Moreover, the size of the grains of quartz for instance ranges from 0.5 to 0.7mm pl.XC nos c-d, pl.XCl Nos a-e and pl.XCIII No a suitably illustrate the chaff and grit tempers in cross sections, while pl.XCII Nos a and c-f and Pl. no b-c illustrate the clean burnt chaff on outer and inner surfaces.

The Clay

The clay basically is the same as ware Bi but it contains some small grits, whether present naturally or introduced by the potter.

Firing:

The method of firing this ware Bii, is similar to that used with ware Bi, i.e. it is fired chiefly in a reducing atmosphere, so that most of the sherds have a black or grey core, see again p.XC Nos d e, pl.XCl Nos a-e, but very few sherds show the same colour throughout their substance or surface (as they do when fired in an oxidizing atmosphere). Most of the sherds are fired red and dark brown on both sides, the other colours ranging from buff to grey through brown, grey and black. Some sherds are not sufficiently fired, and therefore have dark patches. (Plate XCl Nos d-e Base 2), and PlXCII No d and e (see arrows). One sample is obviously over-fired, and therefore twisted. (Plate XCII Nos b-c).

Most of the vessels of this general description are wheel-made; these in fact comprise 82% of the total. Hand-made pottery, such as that in Bii here, forms only 12% of all the pottery of Zubaidah. The characteristically wide ledge-rim seems to have been made generally by folding back and squeezing out the 'slack' of the edge. Pl.XCI No c (J/67), Pl.LXXVIII No a (J/37) and Pl.XCIII No a B/152, illustrate this technique in the cross sections.

Some of the rims of jars have apparently been made by coiling them exteriorly (See Pl.XCl No b). In addition, there are some sherds which were produced by the moulding or pressing technique.

Base 1 of Type I (Plate LXXX No.a-b) was hand-made, and the sides in this case were beaten and trimmed with a knife; some instances of such hand-made ware were very roughly made, (Base 28, Plate LXXVIII No.a-b).

There are in all four types of surface finish on pottery of this type. Each of these techniques has been described previously, in the general discussion of the Zubaidah pottery, so here adduces only a few examples which pertain to Type Bii in particular.

There are a few plain sherds which were not coated with liquid clay at all, but whose surfaces were simply smoothed, at times badly smoothed, that is, by hand only. Plate LXXVIII a. Base 28 illustrates an example of this. There are, it is true, a number of sherds in which it is not possible to determine whether they were smoothed or slipped, as they have been badly weathered.

Taken as a whole, most sherds were given a slip in varying shades of a number of colours, but mainly brownish-red, see Pl.XCIV No a and Pl.CV No a. The other colours range from buff to orange, light brown through dark brown to brownish grey: and sometimes even dark grey. It is important to note here that there are very few sherds which have

a clearly visible slip (Pl.CIV no a J/37) most now having only traces of one. The application of a slip both on inside and outside was common - Bowl 152 has a brownish-grey slip under greenish grey wash on the outer surface (Pl.CV No.d) and dark grey slip on the inner surface (Pl.XCIII Nos.b-c), but at times it was applied to one side only, usually the outside, (Plate CIV No.B-b, Bowl 69 illustrates a brown slip with dark grey patches, due to insufficient firing). Generally the surfaces after being slipped were smoothed by some kind of tools, but in some cases, probably were smoothed by hand, or being hold while the vessel was still in green stage (wet), Plate XCII No.a illustrates a thumb or finger impression on the outer surface of the base 17.

A few sherds have traces of a wash, usually applied to the outer surface over the slip. The colour ranges from white to whitish-green and greenish-grey on the outer surface, very rarely is there a wash on the inner surface, but when it does occur it is dark brown. Pl.CV No.d illustrates a light grey or greenish grey wash over a dark brownish-grey or black slip, Pl.CVl No.a illustrates a white wash or slip (Jar 51) No.c, illustrates a white or cream wash over a brown slip, (Jar 46) and Pl.CV No.b illustrates a pinkish brown wash (Jar.11). The burnished sherds now show only traces of burnishing because of erosion, hence it is difficult to know the precise method of burnishing used. However the burnish is most commonly rich red in colour, and occurs on both sides, the other colours being light or pinkish-red and brownish-red (maroon), (See Pl.CVll No.b) B/126 and No.e BS/11). One sherd has a red inside up to the rim, and is likewise red up to approximately one centimeter below the rim on the outside; the rest of the surface is burnished in grey. Plate CVII No.d (Bowl lO).

Most of the sherds are undecorated, although there are a few

which have an incised decoration of straight horizontal lines (Pl.CV No.d and Pl.CXll-d), and one example has thumb impressions below the rim. (Pl.CXIII No.b). The other type of decoration is a red burnished band below the rim (Pl.CVII No.d B/10) and red painted band over a grey wash or paint (Pl.CXIV No.a B/95).

Fabric type Bii represents the following form types:

Bowl Types: 1b,2a,3a,4a,b,5,6a,8a,9a,b,c,d,10a,c,11a,12,13a,b,14a, b,c,d,15a,16a,17,18a,21b,22,23a,b,

Jar Types: 1a,c,2a,6a,8a,b,c,9c,11a,

Base Types: 1,2,3,4,6,9 a,b,c,.

Type Biii

This ware of temper is very similar to Type Bii, the difference lying in the fact that the pieces of grit are here larger, the size ranging from 0.5 to 0.9 ; at times, indeed, they are very large, being up to 1.8cm. Plate XCV No.a illustrates the large piece of white stone in a cross section of Jar 10, while No.b-c illustrates the large pieces of grit on the outer surface and in a cross section of Base 41. Pl.XCVl Nos.a-b illustrate scattered dark grits on badly eroded outer surfaces of Bases 30 and 8. This temper is found in 6.50% of the total pottery of Zubaidah. Pl.XCVII No.a illustrates chaff impressions with white grits (arrow).

The Clay

Generally speaking the clay of this type, Biii, is the same as that of ware Bi, but it includes some large grits, as we have seen.

Firing

Most of the sherds were fired in a reducing atmosphere, creating, as usual, a very thick black or grey core in the thick heavy jars. A few sherds were of the same colour throughout and all

over, as the ware was fired a red to rich red colour, ranging in practice from reddish-orange to grey and reddish-brown.

The technique of manufacture was not the same as for Types Bi and Bii; except for one or two examples, all the sherds were wheel-made. There is here no indication of coil-made vessels, but there are one or two examples of heavy, high-pedestal jars for which the pedestals were certainly made separately and later attached to the jars (Pl.LXXXI nos ab Base 52).

Almost all the surfaces have been much eroded, but they still bear traces of slips which indicate that most of the sherds once had a slip on both sides, some now bear traces ofa slip on one side only, but these are the most badly eroded examples. A red slip is much the most popular, the other colours being reddish-brown to dark brown, one example only having a reddish-orange slip. A very few examples only have a thick brick-red slip, which is by no means common, either in this sub-type (Biii) or, (probably) in any of the Zubaidah pottery; both are from a later phase. PlateCIV No e illustrates this colour in a heavy jar 57 of Form Type 9a. Perhaps this jar was burnished because the area of the remaining slip is smoothed, and because the colour is very similar to the burnished Base 10 see Pl. CVII No a for the comparison. There is no indication whatsoever of a wash on the surfaces of this sub-type Biii.

Only one example, a body sherd, is burnished, in a reddish-brown colour, the inner surface having an eroded grey slip, so it is not certain whether the inner surface too was burnished or not. This sherd was found in the lower level 66 of Trench IV of Phase 1-A. There are two examples of bases the inner surfaces of which are smoothed, the fabric of which is slightly soft, and which are in many respects

similar to some burnished sherds. Perhaps therefore, these bases were originally burnished, but of this it cannot be certain for the surface on which the slip would have been has worn away.

All the sherds are undecorated, except for three examples; one sherds shows two parallel rows of pressed, circular, hollow dots, (plate CX.No C Bowl 75), another example which shows two deeply incised parallel vertical lines on top of the rim of a heavy jar (Jar 55) Pl.CXI No a and one small body-sherd which shows an incised wavy line. (Plate CXI No h)

Ware Biii is represented in the following Form Types:

Bowl: 7a, 9a,b, 17

Jar: 2a, 5, 6c, 7, 8c, 9a, 11a, 13a and 19

Base: 2, 3, 4, 6, 9a

A large boss or leg of an unknown object.

Type Biv.

In this sub-type the clay is fairly well levigated with a temper of small pieces of grit, but without chaff. It is not strongly represented in Zubaidah and is found in only 5.28% of the total pottery at this site.

Firing: All the sherds were fired in a reducing atmosphere, so creating a red to rich red to orange colour. One example was badly fired, hence areas of the outer surface have been vitrified. The method of firing is the same as with the previous sub-types Bi, Bii and Biii.

All the examples have a slip on both sides, chiefly in red to rich red, others being in red, yellow, buff, buff or orange. One example has a grey slip on both sides.

All the examples are undecorated except for two or three which are incised with straight, horizontal lines below the rim. One example has a finger-impressed decoration at the bottom of the bases (Plate CXI No C)

This ware, Biv, represents the following from types:

Bowl: 4c, 8a, 8b, 14b, 16a, 18 and 18b

Jar: 15a only

Base: 8b, 9b, and 10

Type Bv

This sub-type of ware is very rare, only a few examples occurring, usually consisting of large pieces of grit but without chaff; it is found in only 3.75% of the total pottery from Zubaidah. All the examples of this sub-type were wheel-made, and have a very thick black core. The slip found on all occurs only on the outer surface, and is red or grey. One example seems to have had a white wash on the outer surface. None of these vessels were decorated.

Form: Represented by two base form-types i.e. Types 6 and 7.

Type C

Ware C represents a fine clay, and for convenience has been divided into two sub-types Ci and Cii. Both sub-types are quite rare in Zubaidah, and amount to only 2.20% of the total pottery.

Type Ci This type of ware has a very fine clay, well-levigated and including no pieces of grit or chaff. Plate CXXI No a Sample Z.51 illustrates a fine, thin section of the Bowl 21 of this type. The matrix contains some biotite and mica flecks measuring on average, 0.1mm. quartz grains and sparce measure from 0.06mm - 0.03 mm (silt size).

Firing: Fired in an oxidising atmosphere, ie. red firing through out. Pl CXVI, No. a illustrates this firing and fine clay in the cross section of the B/21.

All the small, fine, thin bowls were made in one piece; they are all wheel made.

All the examples have a slip on both surfaces, in buff or orange red. Two bowls of this sub-type are painted; one is painted with a red band about 1 cm below the rim on both sides, the other shows a really fine, and indeed unique, specimen of an eroded deep red or ox-blood colour paint over the both surfaces. Bowl 21 Type 3b, Plate CXV Nos ab llustrates the worn deep red paint on the buff or pinkish-red on outer and inner surface. No other style of decoration has occurred in this sub-type, up to the present, all the examples of which are bowls of Bowl-types 1, 3b and 13a.

Type Cii: The clay of this sub-type ware is also well levigated, but sometimes has fine pieces of grit or sometimes chaff, but in very small quantities. Pl.XCVIII Nos ab illustrates burnt chaff in the cross sections of the B/133 and J/66 Pl.XCVII Nos bc illustrates some fine grits and rare chaff on the outer surfaces of J/135.

Firing: Some vessels were fired in a reducing atmosphere, others in an oxidising atmosphere; generally the core is thin and light grey in colour. All the sherds were fired pinkish-buff to red, or reddish buff.

All the examples were wheel-made. The rim sherds are as usual from heavy Jars, but it is not certain whether these were made separately or not.

These sherds were all slipped on both surfaces. The slip here is usually red, but ranges from buff, pinkish-buff to pinkish-red and some examples have a dark grey or brownsih-grey or probably dull cream wash over the slip. Plate CIV No c Bowl 133 illustrates a red or reddish-buff slip on light buff.

All the examples are undecorated, except for two examples, one has finger-nail impressions on the shoulder. (Plate CX No b Jar 66) and another which has a straight horizontal incised line below the rim.

Ware Cii represents the following Form Types:

Bowl: 10b, 14c and 24

Jar: 2a and misc types Type Misc 2 is a lid ledge jar probably with two horizontal lug handles see Pl LIX 133

Base: 2 only

Type D

This sandy ware of a relatively coarse type clay, amounts to 8-10% of the total Zubaidah pottery and has been divided into two sub-types on the basis of the composition of the temper:-

Type Di: Sandy, with pieces of grit small and large, and chopped chaff and amounting to about 5-10% of the total pottery from Zubaidah Pl.XCIV Nos b and d (J/65) illustrates some chaff impressions on outer surface. Pl XCV III Nos d and e (Bowl 181) illustrates large white grits in this cross section and small sandy white grits on outer surface No f illustrates small dark sandy grits on outer surface and a deep large vegetable impression (reed?) near the top of the rim can be seen clearly in the cross section of Bowl 29 in the same above mentioned plate No g.

Type DII Sandy, with grits only, sometimes quite large, but without chaff and amounting to 3% of the total Zubaidah pottery. Plate XCIX Nos a b illustrates the small sandy grits in the cross section and on the outer surface of the jar 132. Both types are basically the same in the character of their fabric and in the other techniques, and so will be discussed as one unit.

The Clay

Basically, the colour of the clay is orange buff or light red. In general, the clay was fairly well levigated but sometimes it included some large grits; perhaps in this instance they were not added deliberately as a tempering material, but were present in this sandly clay.

Firing:

About 50% of these sherds were fired in an oxidising atmosphere and 50% have a grey core. Most of them were fired buff or orange-buff, a few of them light red, grey or brown and one or two dark orange.

All the sherds were wheel-made, except for a very few hand-made examples. There are no indications here that the out-folded rims were applied or that the large jars were coil-made.

All the sherds probably had a slip on the inside and outside, but some sherds are badly eroded, no traces of the surface finish surviving. Most were slipped in a light red to buff colour, the other colours being reddish-brown to brown (Pl.CXIV Nos b and e J/65). Some of them had a dark grey slip on both sides, only one example having a red slip. It is not certain whether a wash was commonly applied to this type or not.

Be that as it may, there are two examples which clearly have traces of a white or greyish green wash on the outer surface see Pl CV No f BS/22) and one example possibly has a brown wash on the inner surface.

Nearly all the sherds are undecorated, some few being decorated with grooves; but two examples have straight, horizontal, incised lines below the rim (Pl CIX No e B/17) and one example has a band of brownish-red to maroon paint below the rim on inner surface (Pl CXIV Nos b, e J/65)

These two types, Di and Dii represent the following form types:

Bowl: 2b, 2c, 4a, 8b, 9b, 10a, 10b, 11a, 12c, 14a, 18a, 19c, 22, 23a

Jar: 6b, 6c, 7, 8a, 10, 16a and misc types

Base: 1,3,4,6, and 7

Type E

This ware is associated with a fine sandy clay, very well levigated and amounts only to 1.40% of the total of Zubaidah pottery. Some of the sherds of this type undoubtedly belong to the very finest wares so far found at Zubaidah (ie perfectly shaped, well fired and made with a fine paste). The clay is basically pinkish red through red to reddish brown in colour.

Firing:

Most of the examples were well fired in an oxidising atmosphere, except for one which has a thick brownish-grey core and blackish grey patches due to bad firing on the outer surface. One example was fired on the surfaces but had a pinkish red core (Plate C No d J/62); all the examples in general were fired red not only on the surfaces but throughout See Pl C Nos b, e and f.

Nearly all the examples of this types of ware have fine sandy grits, except for one or two examples which include slightly larger grits and here the ware is slightly friable. Plate C No b Bowl 19 illustrates this latter ware in a cross section. For comparison see the same plate C nos d and e which illustrates the fine grits in a cross section which of course are all smooth (For details of sandy ware see below under Sand Temper)

All the sherds of this type are wheel made, and what is more are perfectly formed and exhibit a remarkably accurate and workman like skill. It seems that they were a single piece of clay, the simple rims having been folded out, thus appearing as overhanging or rounded in section (see the cross section in Plate C Nos d and e).

Most of the sherds have a slip on one side, chiefly in red, i.e. the same colour as the ware itself (Plate C nos d, e and f) illustrates the slip on outer surface in cross section below the arrows Pl CIV nos a, b and d show the slip on outer surface. One example has a brownish grey slip, but this is perhaps due to insufficient firing. Another example has a brownish-red slip. Some examples are undecorated, their surfaces having been smoothed carefully, but exceptionally some are finished carelessly (Pl CIV No b Bowl 19)

All the sherds of this type except for one have no decoration. The one example to have any has straight horizontal incised lines (Plate CIV Nob).

Ware E is represented by the following form types:

Jar: Type 10 (two examples) Pl XLII Nos 64-66)

Bowl: Types 3a (Pl II No 19), 10b (Pl X No 91) and Types 19a (Pl XVIII No 164)

Type F (Cream coloured clay "Calcareous")

This ware belongs to a yellowish cream clay. This type is a rare type at this site and amounts only 2.38% of the total of Zubaidah pottery. Table 4 (p.339) and is here divided into two sub-types as follows:

Type Fi: This sub-type ware belongs to a glazed ware made with a fine well-levigated clay of yellowish cream colour. Only a very few have been found so far. Plate CI No d illustrates this fine clay in a cross-section of a glazed base 35 of form type 6, a very excellent example of this high quality glazed ware. Another instructive example is a large body-sherd, perhaps of a jar or jug, showing the remains of a spout (Pl. LXXIII Form type 1). All the other sherds are simply body-sherds. See Table 4 for thie distribution. This sub-type is probably not common at Zubaidah and all these sherds came from the surface collection and from Trench 1 of the uncertain phase. Two samples have been petrographically analysed (Sample Z1 and Z3). The matrix of the both samples is non-bire fringent which contains fine grits of quartz of 0.5 to 0.2 mm . Very occasional clinopyroxene crystals are also present (0.05 mm) and very rare particles of hornblende measuring 0.05 mm). Two small pieces of sub-angular plagioclase-felspar were noted and fine polycrystalline quartz particles occured occasionally. See Pl CXXVII no b of the sample Z1.

Firing: All these sherds were well fired yellowish-cream or green-buff.

All were wheel-made, most probably in one piece.

All the surfaces were smoothed and then later glazed; examples of the Zubaidah glazing on both sides and on the outside only are found.

In all cases the glaze has flaked badly and suffered decay and loss of colour. All that now remains of the colour is a pale greenish-blue, white and yellowish-green. (Plate CVIIINos a b and c) a, b, glazed only on the outside; c, faded light green glazed on the outside with traces probably of a white glaze on the inside.

All but one of the sherds are undecorated; the one exception has straight, parallel, horizontal incised lines.

Type Fii:

This type also has a greenish-buff to yellowish-cream clay but is tempered with chaff and with small pieces of grit and occasionally with large dark pieces of grit. Plate CI No a J/5 illustrates the pieces of grit in cross-section and PlCVIII No d shows the chaff on the outer surface with some seed impressions of the same Jar 5.

A sample has been petrographically analysed (sample Z 190 PlCXXIX No a). It is very similar to the samples of the type Fi, but also containing occasional elongated voids (max length 1.5mm) from the burning out of organic presumably chaff, quartz up to 0.4 mm, hornblende up to 0.2 mm, felspar (rare) less than 0.1 mm. Slightly micacious matrix.

All the examples were wheel-made and all of them were well fired. The top of the rim of one example (Jar 5 Pl.CI Noc) is broken; the actual shape of the top of the rim is uncertain.

It is not certain if all the sherds had a slip or if they were simply smoothed so that they are the same colour as the ware. Only one example has a slip of a greenish-buff colour on the outer surface, the inner surface having merely been smoothed. Some sherds have a black deposit on the inside No b on the same plate.

Only one example shows straight, horizontal incised lines, (Plate CVIII No d J/5) all the rest are undecorated.

Type Fii occurs in the following form types only:

Jar: 1a, 4, 5 and 18.

Type K

The clay of this ware is very much the similar to the clay of the standard pottery (types B, c and D) but it added crushed pottery (grog) deliberately mainly with chaff.

Initially it was thought that the grog tempered pottery is a rare type at Zubaidah, and it was retained under the miscellaneous, but later the petrographical analyses showed that this type probably was not uncommon, therefore it was referred to as a new type and given a separate type letter (K) which chiefly occurs in the later phases associated with the standard pottery. See Table 4 for the distribution of this type. It is not certain whether this type was common or not in the early phases, only one example has been identified by the petrographical analysis.

Plate CII No c illustrates the flecks of grog in the cross section of the bowl 170, which are clearly visible in red colour in the light pinkish red paste. Pl CII Nos a,b illustrates this temper in the cross-section and on the outer surface of the Jar 86. Some samples of this type have been petrographically analysed for the details see below.

The p was mainly fired in an oxidizing atmosphere. One example is overfired (grey throughout) and twisted (Pl.CII Nos a,b).

All the examples have a slip on both sides chiefly in red or in orangish-red (Pl.CV No c Bowl 170) one example has a grey slip. All the examples are plain and have no decoration except Jar 86)Pl. CII No d) which has grooves below the rim.

Form types:

Bowl type: 20a

Jar type: 19a

Base type: 1

Some body sherds

Miscellaneous

There are two fabric types which are very rare in Zubaidah:

Type 1: This type belongs to a base 4 of form type 1;. It is very coarse and contains many large black angular grits with some impressions of chaff. Plate CIII no a illustrates these grits and burnt chaff in the cross section. Both surfaces have a slip (pinkish buff) but, even so the grits are clearly visible see Plate CIII No c. This sherd was probably wheel-made? It was fired in reduced atmosphere; No.a on the same plate illustrates a thick light grey core in the cross section. This example has been decorated with brown paint just above the base (see again the same plate No.c), see below the description of the petrographical analysis.

Type 2: This type occurred in a small body-sherd which once more, is completely unique. It is made with a greyish-green paste, and was tempered with a considerable amount of chaff and some other vegetable matter. It is not certain if it was wheel-made or hand-made, but clearly it was well-fired in an oxidising atmosphere. The outer surface has traces of reddish-brown or maroon slip or wash.

Tempers

It has already been seen that certain ingredients were added deliberately to the raw paste as a temper.

Various materials served as tempers in the pottery at Zubaidah in pre-Islamic times. These were:-

1. chaff as the major temper
2. white limestone grits
3. mixed tempers including a number of grits, mostly with chaff but occasionally without
4. sand
5. grog temper (crushed pottery) and chaff
6. black grits

1. Chaff

The most popular tempering material at Zubaidah was chaff, which is found in 77.35% of the pottery. Chaff served as a rule as the only temper and in this function is found in 25.55% of the total. It was also much used with other tempers, such as different types of grit and so used is found in 38%. About 3.60% of the coarse pottery (TA) has a chaff temper, the sand pottery has about 5% (TD) and the cream pottery about 3% (TF) and finally the fine pottery (TC) about 2%. It dominates in all the phases of all the trenches except for phase 1 of trenches III and IV where it is rare. Wherever found, chaff can be easily recognised on the surface of the vessels as it leaves a distinct impression after it has been burnt out in the firing.

Most of the Zubaidah pottery is undecorated or worn so the chaff impressions are clearly visible. At times these impressions were covered by slips or washes, but even so, they are easily recognizable. Plate CV No g illustrates chaff impressions on the outer surface of Jar 50, which has been coated after firing with a greyish-cream wash; nevertheless, the chaff impressions are still clearly visible. They can also be seen in the cross sections,

because when a length of chaff burnt away during firing, it left a small hole. The number of chaff holes, of course, depends on the quantity of chaff used as a temper, but the majority of the sherds show that the potter of Zubaidah were generous here and added large amounts of chaff to the clay, perhaps because the clay was too elastic. By the way, there is an extraordinary example of a vessel which received a very large amount of chaff, and hence when fired showed a great many holes. The vessel is quite thick, its thickness ranging from 1.5 to 2 cm but for its size it is very light in weight. As a rule it seems that chaff was chopped or broken into small pieces and then added to the clay as a temper. The size of the pieces is very various and never the same in any particular phase; but it sometimes varies according to the size of the vessel, eg in small or fine bowls the pieces of chaff are smaller. Plate CIV, B C illustrates smaller pieces of chaff in the surface of bowl 133, the impressions ranging from 0.5 to 2.5 mm in length. Compare this bowl with jar 50, mentioned above, in plate CV No g which has longer and broader impressions. In general, the impressions range from 0.5 to 1.2 mm in length and 0.2 to 4.0 mm in breadth and rarely up to 2.2 cm in length.

It has often been confirmed that other vegetable materials sometimes came to be included, but probably these were not added deliberately as a temper, but were perhaps wind-blown and came thus to be stuck on the outer surface while it was still in the green stage. These vegetable materials are probably reed, wood or some kind of cereal. Plate CVIII no d illustrates impressions of cereal and chaff of various sizes. These all have the same circular and oval shapes, one being on the ridge of the rim;

perhaps this impression is of barley. Another impression just below the incised line on the left side could be of reed. Another large impression of a vegetable material is that shown on Plate LXXXIX no e (Jae 1/8), this impression is about 2.2 cm in length and 2.0 to 1.0 mm in width. Perhaps it is of reed or simply broad grass.

2. Crystalline Calcite Temper (large white limestone grits)

This temper is referred to under type A and has been already discussed under the fabric types (see F.TA). It (as the petrographical analysis showed) consists of large white grits of crystalline calcite which were added to the pinkish or brownish-buff matrix of limestone clay containing some mica. All examples are birefringent. The rocks from which this material has been weathered belong to the Khuff formation, which is basically limestone with calcite below it, and containing scattered irregular masses of coarsely crystalline limestone (Fig 2). The Preliminary Report on Cement Raw Material in the Unaizah, the work of M A Bhutta[16] (Petromin, Saudi Arabia) shows that the tan-colour, reddish-brown limestone owes its colour to iron oxides and dark-brown sandstone at the base of the formation, which is itself ferruginous. Samples of the coarse pottery have been analysed, and yield similar results to the Report, that is to say, they prove that the matrix was of pinkish red and brownish-red limestone and contained crystalline limestone and iron oxide particles measuring 0.03 mm (see again Plate CXVII Nos a b). This proven chemical similarity between the raw material and the pottery indicates that the coarse pottery with its white grits was locally made.

3. Mixed Tempers

Here a mixed lithograph comprising a number of different rocks is either blended with chaff or remains without chaff. It has already been mentioned that chaff was the most favoured temper at Zubaidah in the pre-Islamic pottery. The total pottery of mixed lithography without chaff is only about 9% of the Zubaidah pottery, and that of mixed lithography with chaff is about 37½% of the total. In fact, this mixed lithography, with chaff, dominating most of the levels of phases 2 and 3 is found in 49.23% of the total pottery, with and without chaff. The presence of this mixed lithography in almost every level of phases 2 and 3 indicates its popularity as a temper, and also indicates that there was no great variation in the technique of preparing the clay-paste during the different periods of occupation at Zubaidah. The size of the grits, however, varies appreciably; at times there are small scattered grits or even fine grits, and at other times there are quite large grits. Where these grits occur on the surface, they have usually been coated with a slip but when the slip has worn off, the grits can be clearly seen, sometimes indeed the grits on the surface are so big that they can be seen under the slip, even if the slip has hardly worn off al all (Plate XCV No c Base 41) It seems likely that these particular grits were, in fact, not added to the clay as the major temper, because, compared to the quantity of chaff, there are few of them and they are much more scattered. See Plate Xcl No C which gives the cross-sections of Jars 67; this demonstrates the different types of grits from different rocks, red, pink and grey. The paste in most of the sherds is medium fine, but at times it contains quite large stones. One example of such a stone can be seen quite clearly in the

cross-section, although the paste is medium fine with fine dark grits. This stone measures 11 mm in length and ranges from 3.0 mm - 4.5 mm in width (Plate XCV No a Jar 10). Most of these sherds have been analysed petrographically under a microscope.

The analyses showed that such tempers of mixed lithography consists mainly of fragments of mica, mica quartz, plagioclase feldspar and sometimes biotite and hornblende. Accordingly, the fabric itself consists of fragments both of sedimentary and of metamorphic rocks. The mica quartz and plagioclase feldspar fragments are certainly from local geological formations, but the biotite and hornblende may be from the western province of the Quasim region, these metamorphic rocks almost certainly having been transported by water from the Upper Wadi to Zubaidah. Some fragments of this mixed lithography found in some sherds (Fig 2) are angular, which of course suggests that they were first crushed and then added to the clay intentionally. Others are sub-angular and these again may have been added to the clay intentionally just as they were, or they may have formed part of the original clay.

In general, it seems that the clay was fairly well levigated and the above-mentioned large stones may well have been included accidentally during the preparation of the paste. The evidence for this view may be found on above mentioned Plate No XCV a, where this single white stone is shown in cross section. The paste is as usual medium fine and well levigated; hence the presence of such stones is distinctly odd and they were probably not added as a temper. This mixed lithography is, be it noted, not restricted to jars and large vessels which, being large and heavy, need a really

suitable clay to hold the walls, but is also found in quite small vessels.

4. Sand Temper

The sandy wares belong basically to two types, Type E, a fine sandy ware and type D, with larger grits or chaff. Both types have been already discussed in fabric types in this chapter see above. Two sherds of type E were perhaps imported into Zubaidah, to judge from their unique shaping, firing and finishing; two examples of this type have been petrographically analysed a sample 28 Jar 62 Plate CXXVI No b illustrates the fine grits. Pl CXXVII No a of sample Z12 (bowl 19) illustrates streaky clay matrix. In general both samples, the quartz grains measure from silt size to 0.06 mm.

There are some sherds of Type D which contain large grits; some of these examples have been discussed under the fabric types. But there is one outstanding example of the rim sherds which has been accidentally broken in two pieces and whose cross section shows an exceptionally large brown grit with chaff impressions which has been burnt out during the firing (Plate XCVII No C Bowl 16).

The total percentage of this sandy type D and E is not high, actually only about 9% or perhaps a little more of the chaff-tempered pottery; but it seems that the actual clay is much the same as that used in the chaff-tempered type of pottery and that there are four varieties of the local product. The other geographical fact is that the site is surrounded by sand dunes, and that the bed of the wadi is itself covered by a layer of sand; excavation showed too some layers of sand in the cross sections of the main site. From these facts it seems in every way likely that the sandy wares

were locally made; but it is not certain whether the sand was added to the clay intentionally as a temper or was already present naturally. But the chaff was certainly added to the clay as a tempering material. Table 4 shows that these sandy wares do not occur in all phases, and indeed most of the sherds came from the levels of the main site of the uncertain phase.

5. Grog Temper

As it has been mentioned that this crushed pottery that has been re-used as a temper. In fact it is still a rare type at present and amounts only 1.36% of the total Zubaidah pottery, but it seems that extended excavation and the close petrographical analyses might reveal more sherds of this type, from both early and later phases. During the petrographical studies four samples have been identified as grog-tempered while four other sherds of this type were identified by the naked eye.

A sample Z+14 (Pl.CXXXII No.a) of the Jar 86, shows a fine grey matrix containing quartz up to 0.5mm, the occasional fragment of grog (some of which appears vitrified) up to 2mm in length, and rare limestone fragments up to 1.3mm. It can be suggested here that it was a local product because of a wasted ware and because of the inclusion of limestone, since limestone is the locally geologically structure.

Two other samples Z188 and 189 also showed the grog from 1mm to 2mm but sample Z81 shows that the grog was also used in the primitive pottery Type A of the early phase see F/TA Pl.CXVII sample Z81).

The flakes of crushed pottery range in length from 0.05 to 5.0mm, and in width from 0.05 to 2.5mm, all are of red pottery. It should

be noted that this is never the only temper used in a fabric, for it is regularly mixed with chaff and small grits.

6. Black Grits (Miscellaneous)

Only one specimen containing this temper has been found so far, a base sherd. It contains some unusual grits, mainly black, but rarely red in colour. A section of this sherd has been analysed under a microscope, Plate CXXXIII Z/ 18 shows that the matrix contains angular, sub-angular, and sub-rounded quartz grains, approximately 0.12 mm in size- this seems to indicate that the grits have been first crushed and then added intentionally to the clay. This potsherd, by the way, contains black, opaque vegetable matter, the strips of which measure approximately 1.5 mm in length. Pieces of rock are also present, perhaps schist or a metamorphic rock of similar constitution.

From the above analysis it is evident that in the locality of Zubaidah the number of types of pottery fabric in use over a long interval of time is not appreciably different from the number of types in use in any single short period. This very limited variation over a long period (see below the chronology of Zubaidah Table 22) is probably due to the fact that in this locality the sources of clay did not vary much. As has been mentioned already the site of Zubaidah is located in a wadi, where it is of course possible that the clay would vary somewhat from time to time, but it seems that even so there was no great variation in the pottery fabrics. The analysis of the Zubaidah pottery from all phases showed a great similarity in the fabrics over the whole period. It seems too that there was no great variation in the climate of the region for perhaps 2000-3000 years; and at present the wadi is dry for most of the year, because of the dryness of the whole region;

hence there is very little new alluvial deposition. The raw paste varied somewhat according to whether use was made of the old alluvial deposit or of freshly deposited silt; it also varied according to the character of the accidental impurities or of the ingredients purposely added to serve as a temper.

The quality of the fabric depended, of course, not only on the quality of the clay and the other ingredients of the raw paste, but also on the firing process. In this process in particular it seems that the potter never really attained a high technical standard,even in the later pottery except (phases 2 and 3) in a few cases. Most of it was fired in a reducing atmosphere, rather than in an oxidizing one. The result was a black or grey core, sometimes very thick in heavy thick vessels and at other times there was only a very thin line of core. Great variations in the firing colour have been found in the Zubaidah pottery, and these in themselves indicate that a uniform atmosphere was by no means always attained in the several parts of the kiln, and also perhaps that the average kiln was comparatively small. Pottery over-fired to the point of vitrification is also found, but this is rare. Some over-fired sherds have been found at several different levels of the phases and it is certain that the firing technique was never really efficient for in nearly all the occupation levels most of the sherds have patches of different colours, eg grey, pink, purple and brown, owing to one part of the vessel having faced the firing more than another, thus resulting in such patches. These patches were, however, covered with a paint or wash, though at times they were simply left as they were.

SURFACE FINISH

A surface finish is often a decorative quality rather than a merely technical feature, and accordingly there are several different types of finish. Here at Zubaidah there are five types, some involving a coating and others without a coating; these may be called plain (uncoated) slips; wash; burnish; glaze.

Plain Wares

These are uncoated wares, ie. they did not have liquid clay applied to them. Their surface was simply smoothed by applying water by hand or with a cloth after having been shaped and allowed to stand for a short time. This technique tends on the whole to remove the smaller particles of clay and to leave the larger particles projecting from the surface; it is ofter referred to as a "self slip" and may be quite indistinguishable from a true, applied slip. Plate CIV NoAd illustrates the self-slip or water-smoothed surface on bowl 151. Here the colour of the surface and that of the cross-section are the same (see Pl LXXVIII No d) for the cross section. The surface was obviously well smoothed, probably by using a fine damp cloth. The same plate no a illustrates by contrast the roughly and imperfectly smoothed surface of base 28 type probably the result of using a damp hand and so allowing particles of clay and a finger impression to remain on the outer surface. Plain surfaces such as the above occur only in a minority of the pottery of Zubaidah, averaging about 18.73% of the total, 8% being plain on one side only and 10.73% being plain on both sides. Table 5 shows the numbers of sherds plain on one side only or on both sides in each phase of each trench.

Slip:

Reference is frequently made in these pages to a "slip" and it, therefore, behoves us to posses an exact knowledge of what it is. "Slip" is a suspension of pigmented clay particles in water which is applied to the surface of vessels at the green-hard stage, and the Zubaidah potter used the methods of applcation described in the previous section. It is, however, essential to realize that most of the surfaces of the pots are, unfortunately, badly weathered. Some traces of slip do indeed remain, but it is most difficult to detect the exact method of their applicaton, eg.whether the vessels have been coated by being dipped into the slip, or by pouring the slip over them or by using a cloth or brush to apply it to the pot walls. The kind of thing is clear, to take one example (Plate CV No g) is an impression of a palm of a hand or a finger on the outer surface, which indicates that, perhaps, the potter also used the palm of his hand during the application of the slip. It seems that throughout the history of Zubaidah the application of a slip to one or both surfaces of the vessel was the common surface finish, occurring as it does on about 54.8% of all the pottery. The presence of a slip on one surface only accounts for 15.33% and on both surfaces 39.52%. Table 1 shows that the majority of the slipped pottery came from phase 1 of trench III, a smaller amount from the surface collection, while far fewer came from the early phase 2 of this same trench III, and very few also from phases 1, 2 and 3 of trench IV. For details of the slip distribution see Table 5.

The slip was in general fired red, but the red colour itself ranges from very light red to a rich dark red, this latter colour predominating in the pottery of Zubaidah and averaging 48% of the total. The second most frequent colour is brown, which again ranges from reddish-brown to light brown to greyish-brown, the percentage here averaging 22½%. Then again buff-coloured pottery averages about 14½%. grey about 7% and finally, grey and black about 9%. As has already been mentioned, the slip is at times applied to one side only, either the inside or the outside; at other times it is applied to both sides, sometimes in different colours, but for the most part in the same colour. It is noteworthy that apparently fewer vessels have slips on the outside than on the inside, the reason again however, perhaps being simply that the outer surface of the majority has been weathered. Therefore, it is very often difficult to say whether they were given a slip, wash, or were simply smoothed.

The majority of the red-slipped wares were produced in the first two main occupation levels of phase 2 in trench III, and were also found among the surface collection. Although trenches IV and V are on the main site, it seems likely that this type of slip (red) was less common that that of phase 2 of trench III. The red slips on the vessels of the first two occupation levels of phase 2 of trench III are in fact the Hellenistic style, but were nevertheless manufactured locally during the late Hellenistic period. Pl CIV No8e illustrates eroded red slip on reddish-brown firing on the outer surface of jar 57.

Brown-slipped wares, the second most frequent type, are

Brown-slipped wares, the second most frequent type, are less common than red slipped ones; they are mainly found in the occupation lvels of phase 1 of trench III, in phase 2b and level 13 of trench IV and in the occupation levels 1, 2 and 3 of trench I. This type of slip is not found in phase I of trench III. It is indeed found in the surface collection, but less frequently than the red-slipped type. Plate C.IV B – b, d illustrate a worn brown, reddish-brown and dark brown slips which were fired insufficiently.

A third type is the buff slip, less common than the two previous types. This slip too is more common in the occupation levels of Phase 2 of trench III and in the occupation levels 1 and 2 of trench I, while it is found scattered in the different occupation levels in the different phases of trenches IV and V. Plate CIV NoBc bowl 133 illustrates an orangish buff slip on a light buff fine ware. Grey and black slips also occur, but these are much less common than any of the previous types. Plate CV No d bowl 152 illustrates a reddish-grey slip on a pinkish buff firing, and is further coated with an eroded and very thick greenish grey paint or wash. This bowl is also furnished with a black or dark grey slip on the inside.

Within the above range of colurs, slips occur in orange-pink and dark brown; not very common. Plate CVI No a Jar 51 shows thick white slip or wash on the outer surface only. This latter is the only example of a white slip found at Zubaidah. Attention has already been drawn to the fact that most of the surfaces of the vessels have worn off, but there are a few sherds still bearing really fine slips; these suggest by their smooth

surfaces, that they have been either dipped or brushed. It is noteworthy that the slips are in all cases very thin, the thickest being less than half a millimetre. In a few examples indeed the slip has shrunk and flaked from the surface of the sherd, probably because it did not fully cover the surface and, therefore, did not adhere adequately to the paste when the pot was fired or having been fired, while the vessel was still in green-stage and having been not dried properly

Pl C No d bowl 19.

Wash

By the word "wash" means a coating indentical with the original fabric applied after firing. It is, as yet, uncertain however whether or not the application of such a post-firing wash was really common at Zubaidah, for the sherds which have been definitly identified as bearing a post-firing was amount to only 7.32%. a figure which, on the face of it, seems to indicate that this technique probably was not uncommon at Zubaidah. Since there are many sherds, some of them with slips and some without, whose surfaces have been so severely eroded that it is most difficult to say whether they were coated with a wash or not. More generally, various examples of washed pottery from the various occupation levels have been found, more especially in the later phases, while they become progressively rarer as we approach the early phases, such as phase I of trench III and perhaps phase 1 of trench IV as well. But the numbers of sherds with an identifiable wash are very small, as can be seen from Table 5 giving the data for each level of each phase in each trench. It is really

unprofitable to record the percentages in each level in each trench because the numbers amount to only one or two sherds in each level; and in any case to work out the average percentages would be no easy task.

As a necessary part of our task, all the sherds bearing a wash were cleaned in water with a view to identifying the wash (if any) and distinguishing the wash from the slip (if any). The wash is then easily recognized because it dissolves and "bleeds"; its coating was not fired as in the case of a slip, and therefore, it has not become a part of the fabric itself. The wash is also easily recognised because the majority of the wares were chaff-tempered, and from the chaff itself can readily distinguish between a wash and a slip; the chaff temper always sticks to the surface of the ware and during firing burns out, leaving behind only an impression. The wash, of course, is applied after firing, that is, after the chaff has burnt out, henfe the bottoms of the chaff impressions usually get coated with the wash; whereas on a slipped vessel the bottoms of the chaff impressions are clear. Plate CV No d illustrates a light grey wash on a dark greyish-brown slip. The chaff impressions are not clearly visible in the area of the wash, these impressions having been coated with the wash. Wherever the wash has eroded away, the slip is visible on the light red fired surface, and in such a case the chaff impressions in the slipped area are filled with a wash.

Pl CV no g Jar 52 illustrates one which has been coated with a light green wash over a dark red slip; but the chaff-impressions here have not been covered with the wash; and they show clean in the dark red slip. The darkened surface is visible underneath the thin wash, which suggests, surely, two things, firstly, perhaps because of the thinness of the wash, the deep chaff impressions were not covered, and secondly,

perhaps, the wash was actually applied to the slip in the white-hard stage, before firing, so that during firing the chaff-temper burnt out and left the deep chaff impressions.

In some cases too, the inner surface has not been slipped but only smoothed, and coated with a wash, while the outer surface has been slipped and then had a wash applied. Again, the potter sometimes used different colours on each of the two surfaces of the same pot, eg generally (say) a light green, grey or white wash on the outer surface, and a brown wash on the inner surface; but the majority of the sherds with a wash have it in one colour only on outer surfaces, the most common colours being light green on brown and red. White and cream washed are less common and a grey one is rare. Pl CV nos a, b, d, e, f and g; and Pl CVI b and c illustrate washed of different colours found on Zubaidah pottery, either on the inner or on the outer surface.

Burnish:

Burnishing, as applied to pottery, means rubbing the surface of a green-hard shape with a smooth, hard, round-faced tool. Its purpose is quite simply to compact the surface of the clay and tools used for this purpose invariably acquire a characteristic shine. At Zubaidah it would seem at first glance that burnishing was not common and one might easily jump to this conclusion. Only 2.89% of the total pottery is burnished; in fact, there are only burnished sherds in all; three bowl-rims, two bases and the rest body-sherds. See Table 5 for their distribution. Surprisingly enough, each of these types of them came from separate levels of different phases. Only 3 pieces were found together in level 16 of later phase. The presence of burnished sherds in different levels of different phases suggests that perhaps the technique of burnishing was after all well known throughout the

whole history of Zubaidah. Then why the seeming scarcity of burnished pottery? This may perhaps be accounted for in two ways: firstly, again the excavated area was extremely restricted and perhaps there are many more burnsihed sherds in other levèls than have yet been found; and secondly, the surfaces of most of the pottery found have been severely eroded, and the evidence of possible burnishing destroyed.

Two, or possibly three styles (the third one is uncertain) of surface treatment are known at Zubaidah:-

1. Burnishing both the inner and outer surfaces
2. Creating a red burnished belt below the rim
3. Burnishing (possibly) up to the inner rim only

The first type of burnishing the inner and the outer surfaces was probably the more common practice during the periods of occupation on the main site. All the sherds of this type came from Trench IV of the different phases. A second style here illustrated is a more decorated one, the whole pot being burnished, the inner surface to a sharp red colour, extending up to the rim, and then down the rim about 1 cm on the outer surface. Below it (the rim) the rest of the surface is burnished to a grey colour, unique among the burnished sherds.

The third style has a burnished inner rim only. The outer surface may also have been burnished but perhaps this has worn away, we cannot tell. Both of the last two styles were found in levels 16 and 17 respectively in trench V.

The burnishing is chiefly red, ranging from light to dark red, at times being brownish-red to maroon and rarely grey. In the early period it seems once again that the firing was not successful. Plate CVII Nob illustrates a brownish-red (maroon) burnished

surface with black patches due to bad firing. This sherd is in fact, of a black very thick core. This rim sherd of Bowl 126 was found in layer 46, which represents perhaps the earlier stages of the later phase 2 but is certainly later than the levels of coarse pottery. All the burnished sherds from the different levels look very much alike as regards technique and colour, and all are of buff to red-fired ware with a black core. It is again difficult to state categorically whether or not these vessels were burnished horizontally or vertically, because the surfaces of all the burnished wares that have come down to us have been badly weathered. Only scattered traces of burnishing are still visible, and hence it is almost impossible to distinguish horizontal from vertical burnishing. It is difficult too to say whether these sherds are hand or wheel-burnished, especially as no tool has been found that could be definitely identified as a burnishing instrument. As has been suggested above, a smooth stone, stick, shell or even a finger nail could have been employed for this purpose.

The general impression one gathers from the orientation of the burnishing on the pots surfaces is that these wares were burnished horizontally rather than vertically, especially as the light reflected from the burnishing is found to be horizontal; this however is not conclusive proof. Plates CVII No c illustrates a hazy burnishing in rich red and no e illustrates pinkish-buff colours (base 11). See also No a for a light red burnishing on the base 10 of a unique and most unusual vessel burnished on both surfaces. Here the burnishing strokes are not clearly visible, and at times the strokes look horizontal and at others vertical. Amongst the pottery in general there are some sherds of exactly the same fabric

as the burnishing pottery, but with no traces of burnishing, but here the smooth surfaces and the softness of the fabric (similar to that of the burnished pottery) strongly suggest that these sherds may well have been burnished but have,as so often been eroded.

This burnished pottery was very probably all made locally, not imported. If it was imported it would surely only occur in one or two phases, not in a large number of different levels of different phases, and surely not in the same fabric and same technique. All this suggests that there must be a good deal more burnished pottery in the occupation levels of different phases of the site of Zubaidah for others to investigate in future years.

Glaze (Plate CVIII Nos a, b, c)

Glazed pottery is rare at Zubaidah, only six glazed sherds in all having been found; about 1% of the total. For the distribution see Table 5 which shows that all our examples came from the upper occupation levels of the later phase. All the sherds are badly weathered; only a few and sparse traces of a glaze are left, and no shiny surfaces at all have survived. The relevant sherds are glazed in white or very pale bluish green; one is glazed in dark green or olive; one now has only a white powder; one has a pale green glaze. In general, it can be said that the glazed wares were probably originally in pale greenish-blue or pale green. Most of the sherds are glazed only on the exterior but one or two examples have both surfaces glazed.

The exact colour of the glaze and the body depended greatly on the temperature of the kiln and the type of mineral employed; thus a green colour is normally due to the presence of iron in the

composition and a bluish-green colour to copper. With regard to our sherds, in the course of testing the material petrographically, it appeared that the clay unquestionably contained flakes of iron, but that by this method alone it was not possible to discover all the possible minerals such as copper or lead. It is a well known fact that copper normally imparts green, deep bluish- green and pale bluish green colours, while lead imparts deep and pale bluish green colours. Are there then perhaps other minerals forming or present in the clay of the Zubaidah glazed sherds which gave them their various colours? Two or three examples of these glazed sherds, by the way, have a thick glaze, while the others have a thin glaze; this difference is in fact due to the higher or lower firing temperature, the thick glaze being due to the lower, and the thin glaze to the higher temperature.

DECORATION

It will, of course, be realized that pottery may be decorated in various ways when it is in the green-hard or white-hard stages. However, out of the total number of sherds found at Zubaidah, only 95 were decorated, that is only 16.88% of the Zubaidah pottery (Table 5) and only three major types of decorations were used: Incision in different patterns; painting and an applied ridge (or grooved) decoration.

1. Incision

Incised decoration was probably the most popular form of decoration at Zubaidah, belonging to about 10% of the total pottery (Table 5), and about 64% of the total decorated pottery. The total number of incised sherds in each phase is shown on Table 5. It is not difficult to see that various motifs may be applied to the pottery during the final stages of manufacture. For instance, while the clay is still plastic, designs based on curved lines are quite possible but when the green-hard stage is reached, it is only really possible to cut straight lines. The possible variety of designs also depends on the tools available or used for the purpose. For example. at Zubaidah a sharp-pointed tool was used to produce narrow, but also deep incised lines, whereas a round-pointed tool was used to produce wide, but also shallow incised lines.

The art of incision at Zubaidah can be observed in the following styles:

1. Straight Horizontal Lines

This style is found in 67% of the total incised pottery. Moreover, the incised horizontal lines were produced in two styles:

a) lines produced by a thin or sharp-pointed tool;

b) lines produced by a round-pointed tool

a) These lines occur below the rim, or below the neck of the shoulder of the vessel. They also occur at the middle of the outer surface, and rarely at the bottom of the flat base. The incisions here are always scored in single, double or triple parallel lines. Plate CVIII No d illustrates a single incised line below the rim of jar 5; this line was incised by a thin pointed tool. but it was not sharp, as the bottom of the incision is slightly rounded. Nor is the incised line perfectly straight; it curves slightly downward, the distance between the line and the lip of the rim being0.5 mm at one end and 1.1 mm at the other, Plate CIX No b illustrates double horizontal incised lines, parallel to one another. They occur below the rim of the vessel, and the distance between the lines is only 2.0 mm. There is another horizontal incised line at the broken edge of the sherd, which is about 2.0 cm from the other lines; this line also probably had a line parallel to it, but this has broken off. These lines were incised by a thin, but slightly sharper-pointed took than the one mentioned above. Plate CIV No b illustrates an incised sherd from a carinated bowl (bowl 19) with double incised lines over the carination, 9 mm apart. There is a third parallel line clearly visible at a distance of 4 mm, but it is incomplete. At the end of this incomplete line is a mass of clay, which was perhaps left over when the potter cleaned his took of the clay displaced from an incised groove. It seems likely that this mass of clay stuck to the pot before the incising of the third line, otherwise the latter would have been completed, not forgotten. The lines were produced by a thin, sharp-pointed tool. Technically, the tool used to produce horizontal lines should be held in a horizontal position,

but this sherd suggests that the tool was held somewhat vertically, as there are clear indications that the lower edge of the line slopes gently inwards, but that the upper edge slopes sharply outwards.

b) The other type of horizontal incised lines was produced by a round-pointed tool. At times these lines are very wide because a thick tool was employed, and at other times they are narrower because a thinner tool was used. Plate CV No d illustrates three horizontal parallel lines, the distance between the first and second being 12 mm and that between the second and third being 8 mm; the width of the first line is about 6 mm, of the third 4 mm of the second only about 2-3 mm. Plate CIX No c illustrates such incised lines of different widths. Just below the rim are two parallel lines, the upper one, narrower and deeper, being incised with a thin round-pointed tool, the lower one, wider and shallower, being incised with a thick round-pointed tool. Below these, at a distance of about 3 cm, are a couple of parallel lines produced by a thick round-pointed tool. At times, again, such lines were incised on the vessels base (Plate CIX No a illustrates a single circular incised line which badly worn out (follow the arrow). Similar examples also can be seen on same plate nos d, e and f.

2. Wavy of Zigzag Horizontal Lines

Only fine sherd of this are found at Zubaidah so far. Both single and double wavy lines were found, and these wavy lines occur here too, in two styles, the one with rounded angles, the other with sharp angles, the latter being referred to as "zigzag lines". Nearly all the sherds with zig zag or wavy lines exhibit also straight, horizontal, parallel lines (single or double). Plate CX No a illustrates a single zigzag horizontal line between two straight horizontal lines, the lower one having partially crumbled away, the upper one only being clearly visible.

These lines were incised while the clay was still plastic, to judge from the sharpness of the incised edges, obviously made with a sharp-pointed tool. It seems too that the incisions in the zigzag line were made very carefully, as shown by the unfailing accuracy of the distances between one angle and another. Plate CXI No h illustrates another example of a single zigzag line. Pl LXXIV No 1 by way of contrast illustrates two wavy horizontal lines with a single straight line between them, on a body-sherd, while the same plate no 2 different again, illustrates two straight horizontal parallel lines on a body sherd, with a single wavy horizontal line below them.

3. Mixed Incised Patterns

These were found on terra cotta Incense Burners, only three fragments of which were found at Zubaidah, two in the surface collection and one in the level 26a of uncertain phase, trench IV of the excavation. All three sherds bear different designs, a fact which shows that they are derived from different incense burners; and all three are, in fact, exquisitely decorated, being perhaps the most attractive pieces found anywhere in the whole site. Plate LXXII No 1 illustrates the incisions on the outer surface of the top of the rim of an incense burner. Just below the rim is a zigzag design between two straight horizontal lines; this zigzag design is very similar to that on Plate XIX (bowl 171) which also has a single zigzag horizontal line. Below it are two rows of vertical or crescentic punctuations or dashes, which were probably produced with a sharp-pointed tool or simply by a finger nail. Below this again is a row of thumb or finger-nail impressions; and all round the top of the rim we have this same design, produced by thumb or finger-nail impressions. Plate LXXII No 2 illustrates another incense burner,

bearing a simple incised design composed of four straight horizontal lines on the outer surface, roughly parallel but slightly irregular. All around the top of the rim, once more, is a row of finger-nail impressions. The third sherd provides a unique example of mixed incision work, also produced by a very thin sharp-pointed tool. Pl LXXII No 3 and Plate CXII No a illustrates this example, showing three horizontal, parallel lines below the rim, the distances between the lines ranging from 2.0mm to 4.0mm. Below the third line are several vertical parallel lines, whose distances apart range from 7.0mm to 12.0mm. The spaces between these vertical lines are filled by deeply incised dashes. What is more, neither the horizontal nor the vertical lines are straight, but were carelessly executed with a very thin sharp-pointed tool, possibly even a needle. Probably this rim-sherd too is from an incense burner, judging from its straight rim; it does not seem to be a bowl, as was first thought. Only one body-sherd too is from an incense burner; judging from its straight rim, it does not seem to be a bowl, as was first thought. Only one body-sherd was found with a design comprising straight, horizontal, parallel lines crossed by straight vertical parallel lines, forming the shape of a square, the distance between the horizontal lines being 3.2cms and between the vertical lines 2.4cms. These lines again were probably incised with a sharp-pointed tool. Pl CXII no d illustrates pattern between the arrows, but it is not certain whether or not this pattern was designed deliberately or marked accidentally.

4. Impressed Patterns

A remarkably wide variety of devices have been used over the ages to impress the surface of still plastic pottery. At Zubaidah too a number of devices were in use. Broadly speaking, they fall under two headings:

a. various types of tool

b. finger or thumb impressions

A. Various types of tools:

Two styles of impressed pattern have been found, differing according to which of two different types of tool was employed. Plate CXI No a illustrates a beautiful pattern using crescent-shaped incisions. These crescents were probably made by a tool having a point and wall of the same size; this could be a metal tool or one made of a piece of bone cut in half lengthwise, producing these crescents when pressed to the top of the rim while the clay was still plastic or "green-hard". Such crescents were almost always produced in a hurry and carelessly, as the patterns were not regularly spaced. The other tool which could be used for impressed patterns was a round-pointed tool which could form hollow circles or punctuations. Plate CX No c illustrates two parallel rows of punctuation, the distance between the rows being 2 cm. These punctuations are, clearly enough, hollow impressed circles, each of them now represented by a dot or eroded brown slip, on the outer surface. Both these styles of tool-impression were found on unique pieces, the crescent pattern came from the surface collection, and the punctuated pattern from level 10 of uncertain phase of trench IV. Both were very probably locally made but coming from the late phase of the site.

B. Thumb-nail and finger or thumb impressions:

i. Thumb-nail impressions

Patterns so composed occur on the shoulder and around the neck of jars. The thumb-nail impressions themselves are vertical, but together they form a single horizontal row . Pl LXXXVI No A and

Pl XL No 56 illustrates the same style, but on a smaller jar 15 and in a smaller pattern.

ii. Finger or Thumb Impressed Ridges

This type of decoration has been found on a sherd of Level 2, Phase 2, Trench III, on a sherd from the surface collection and also on a sherd from Level 4, later phase, Trench IV. Each of these sherds, nevertheless has a different design. Plate CXI No c illustrates finger impressions at the bottom of a base 51. They are regularly as well as artistically arranged, as the distances between the impressions as well as their depths, are similar. Plate CXIII No a illustrates a finger-impressed design on the pronounced edge below the rim of a heavy jar; here the impressions are not regular, one being somewhat vertical, the other being horizontal and deeper. The impressions are approximately 2 cm apart from one another. Beneath this row of finger-impressions is a straight horizontal, very thin, hazy, incised line, which is, in places, invisible. Plate CXIII No b illustrates thumb-impressions which must have required some force to produce, as they are very deep, and actually show the whole of the potter's thumb in the crescentic shape. The distance between one impression and the other is about 2.7 cm. These impressions too are on the outer surface of the vessel, just below the rim. Plate CIX No f and Pl XIII No 114 shows finger or thumb impressions on the outer surface, below the rim of bowl 114. These impressions were clearly produced by a very gentle pressure as they are rather shallow, and, in fact, at times difficult to recognise. Above these impressions, just below the rim, is a deep, wide, straight horizontal line which was probably incised with a round-pointed tool; at the bottom of this line are two holes, possibly produced by vegetable matter.

II. Painting

It is not at all certain whether painting was a common feature of Zubaidah pottery or not, because the surface of the sherds are in general eroded, except for a few traces; on the whole, perhaps, it was not a common feature. It is present in 3.50% of all the pottery and in about 21% of the total decorated pottery. (Table 5). No painted patterns have been found at Zubaidah so far; but a certain sense of variety is provided by the fact that two types of painting can be distinguished here:

(A) Painting all over, either on one or both sides of the ware;

(B) Painted bands.

A. Painting all over surface

Because of the erosion of the surfaces, it is sometimes difficult to say whether the residual traces are of a wash or of a paint; but there is at least a good example of an eroded deep red paint all over a bowl 21 (Plate CXV Nos a, b) on a pinkish-red back ground, a paint on both the outer and inner surfaces. There are in addition other examples to which a dark-brown or grey paint has been applied all over on one side only. Only eight painted sherds of this type have been found at Zubaidah so far; for the distribution of this type see Table 5.

B. Painted Bands

The other type of painted work, relatively more common, takes the form of a single, horizontal painted band on the rim and just below it, reaching to about 1.0 cm on the inner or outer surface, but seldom on both surfaces; occasionally, several thin horizontal parallel lines are painted. The following plates illustrate each painted style:

Plate CXIV No g illustrates a single band on the inner surface of bowl 93 which starts just below the lip of the rim and continues downwards 7.0 mm. This painted band is pinkish-red in colour, but it has faded in places, a dark-grey paint or wash showing in the background.

Plate CXIV No c illustrates the same technique as above, but this has black paint in a wider band, ie. 1-2 cm.

Pl CXIV No a illustrates a painted band in light red, below the rim, which has faded and worn on the top. This sherd is, in fact, an interesting piece, because, after firing, the bowl was coated with a white or cream wash on the inner surface up to the rim, and the wash then continued on the outer surface to just below the rim, approximately 1.0 cm. Beneath this white-washed band, the pot had been coated with a dark grey wash. Finally, the white washed band, on the outer surface, was coated with red paint which later faded to light red, and then wore out in places, where, naturally, the white/cream wash reappeared. All the surface preparations, washes and paints were clearly applied after firing, since all the chaff-impressions left by firing were coated with washes, especially on the outer surface; the bottoms of the chaff impressions coated with a grey wash can still be clearly seen. This is the only sherd with a red painted band on the outer surface and a grey wash. It was found in Level 13 of uncertain phase Trench IV.

Pl CXIV No f illustrates a faded black painted band on the inner and outer surfaces, below and on the rim. This band measures about 8.0 mm on the outer surface, and about 1.0 cm on the inner. No similar sherds have yet been found at Zubaidah, ie.bearing painted bands on both sides.

Plate CXIV No e illustrates a different type of painting ie. painting on top of the rim and below the rim 8.0 mm on the inner surface.

The colour here is completely different from that of the previous examples, being a pinkish-reddish-maroon, over a pinkish-brown slip.

Plate CIII No C illustrates another style of painting, i.e. on the lower zone, just above the base on the outer surface. It is not clear if the whole pot was painted, or if merely a band was painted, as only a small painted area remains intact (it measures between 1 and 1.5 cm). The colour of the paint ranges from brown to brownish-grey. Perhaps this variation in colour is due to firing; if so, this suggests that the vessel was painted before firing. Two other painted sherds have been found at Zubaidah, with simple, but somewhat different patterns, and these call for brief consideration.

Plate LXXV No 10 illustrates a painted sherd which was collected from the surface (Phase ?). The vessel was painted with straight, parallel, horizontal black bands , the spaces between the bands having been painted in light green. The width of each black band is about 4.0 mm and the width of each light green band about 1.5 cm. It is possible that the whole of the outer surface of the pot was thus painted in black and light green bands- nevertheless, one cannot say with any certainty whether the pot was completely covered in green paint, and subsequently had black bands painted over this, or vice versa.

Plate LXXV No 11 illustrates a similar pattern of green and black painted bands, as above, the difference being that here the bands are much wider and in black and brown paint. The width of the black bands is 2.2 cm, and that of the brown is from 2.4 to 2.8 cm. Both could have originally been wider, as the edges of the sherds are broken, so it is difficult to estimate the true width of each painted band.

Three black painted sherds, bearing different styles of painting, were found together in Level 37 of uncertain phase, Trench IV. It seems likely that the patterns on the inner surfaces of all these sherds were composed for some utilitarian purpose, rather than being purely decorative. They suggest that the sherds had some functional purpose, such as tokens or counters, as suggested by P. J. Parr. Or they could be some kind of symbols, or the requisites of some sort of game played by adults or children. All three sherds have a similar painted pattern, ie an irregular square with rounded corners; within this irregular square each sherd has a different design. Plate CXVI Nosb, c, d illustrates hese painted sherds and Plate LXXV Nos 12, 13 and 14 illustrates the painted patterns on each of these three sherds.

C(13) illustrates the first of these, which has a slightly oblong shape with rounded corners, the inner field being left plain. The thickness of eachside is about 2.0 mm.

D(12) illustrates a very similar square, but it is divided in two by a thick straight, horizontal line, the thickness of the sides and of the dividing line being the same as those of Plate a above.

B(16) illustrates the third, which is, in fact, nearly oval in shape, ie. not really square. Inside this oval are two horizontal parallel lines. It is clear from the patterns painted on this particular sherd with irregular edges that they were painted after the pot had broken, and that the sherd was thus put to some other purpose, which is as yet uncertain. This may also be the case with the other two.

It is worth noting that the painting is in all these cases extremely simple, being confined to bands in different colours. These colours are limited to black, grey, brown, light-green and pinkish-red. No other

varities or colours in such designs have yet been found.

III. Applied Ridge (or Grooved) Decoration

In its simplest form, applied decoration need to be no more than pellets or bands of clay, stuck directly on to the wet surface of the vessel. These may be further tooled or shaped by hand, while still plastic, to produce ledges or different patterns. At Zubaidah only three sherds bearing applied ridge decoration were found, two from the surface collection, and one from Phase I of Level 5 Trench III. All three sherds bear different designs and were made by using different techniques.

Plate CXI No f and Pl LXXV No 8 illustrates a body sherd with such an applied decoration, produced by forming a simple ledge on the outer surface with a wide, shallow groove above it.

Plate CXI No e and Pl LXXV No 6 illustrates an applied ridge band which was stuck on to the vessel, and later smoothed after the application of a slip. The applied ridge band was then impressed at regular intervals with the fingers, so forming finger or rope impressions.

Plate CXI No d and Pl LXXV No 7 illustrates an applied chain-shaped decoration. This has been tooled, using a circular, pointed tool.

Note on the Incised Inscription and its probable meaning

Only one sherd with an incised inscription was found, and that came from the surface collection. It is of a quite late period. Not even one inscribed sherd has been found during the excavations at Zubaidah; perhaps inscribing was not a traditional occupation here. The sherd in question bears two characters IY (Plate CXII No b), but it is uncertain whether these are Greek or not. The characters were incised on the outer surface of the body of a large vessel, possibly a jar to judge from the thickness ,

of the sherd (see No C in the same plate). This particular sherd has already been mentioned, in the section concerned with technique, owing to its being of the moulded type, and it was certainly made locally, as the fabric is the same as that of the other Zubaidah wares. Probably, therefore, it was not imported, as one might have thought, but made locally during the late Hellenistic period, the two characters being perhaps the initials of the potter's name, or the industrial site where it was made. After due reflection, it does not seem that the characters were primarily intended to be decorative, but they could well have had some ornamental value.. All the sherds from Zubaidah, both those found on the surface and those found during excavation, were exhaustively examined to see if any bore any inscription, but there is not a trace, apart from this specimen. There are, it is true, two or three sherds which bear two or three parallel, vertical lines at the top of the rim. Plate CXI No b illustrates two such deeply incised parallel, vertical lines at the top of the rim of Jar 55, while Plate XXXV NO 15 illustrates three such incised parallel lines at the top of the rim of Jar 15. It is, however, almost certain that these lines are not inscriptions, but probably some kine of symbol or trade-mark, serving to distinguish these jars from those made by others in the trade; or to put it differently, the function of these marks on jars could be the same as that of the brand-marks on herds of cattle or flocks of sheep.

GENERAL REMARKS AND FINAL DISCUSSION OF ZUBAIDAH POTTERY

The excavation yielded two distinct categories of pottery.

The early period produced an entirely primitive pottery, while the late period produced a relatively developed pottery, referred to here as "Hellenistic pottery". The main characteristic of the early category is that it is entirely hand-made, soft, friable, thick and very coarse with large grits, soemtimes with chaff. The other characteristic is that it is all undecorated, except for one example decorated with a raised band. The amount of excavated sherds is very small in comparison with that of the late period pottery. Most of the examples are body sherds, but some are rim sherds, particularly of bowls; as a matter of fact, only one example of this type from the intermediate phase, has a complete profile from rim to base, Bowl 52 (Pl LXXXV No a and b). Only one example of a har (62) has been found, strange to say (Plate LXXXV No c). Among the finds there are two unusual objects. One may be recognised as a handle (H/4) of a jar (See Plate LXXXIII No8); the other is U-shaped and its function is uncertain. (This has been discussed, (Plate LXXXIV Nos a, b c)). In general the potter of this period lacked both the skill and the technique found elsewhere, either because no new ideas penetrated and were adopted, or perhaps because there was no great demand. Was this society itself too simple or too poor? Only further excavation can clarify this whole matter.

General Remarks on the Late Period Pottery

All the evidence points to the conviction that in this period the potter at Zubaidah had adopted new ideas and new techniques in his trade. He had, for instance, introduced the use of the wheel at an early stage of this late period, and, compared with that of the early period, the

pottery shows many signs of development and progress. It shares several familar features of course with that of other area, but among this assemblage there are also some unique aspects.

Form Features

One of the most common form here is the simple thin uncoated bowl, common everywhere in Arabia. Such bowls have flaring sides, rounded or flattened lips, or slightly thickened on the exterior, and are of medium depth (Types 1, 2a, 2c, 9a, 9b and 9c; Plate I Nos 1-15, Pl II No 17, Pl VIII Nos 66-76 and Pl IX Nos 77-82). They number about 16% of all the bowls, have no special purpose but are simply household utensils. A varient form is the simple bowl, very similar to the previous one, but whose sides curve slightly inwards; (See Plate IX Type 9d). The majority of the vessels here are bowls of medium depth, representing approximately 60% of the total late period pottery. 15% are of the deep variety, with upright sides, with simple thickened rims, or occasionally with club rims; some of these are probably cooking pots, eg bowls type 16a, 18b and 19 a, b, c (see plates XVII and XVIII). There are very few small bowls (about 10% of the total), and these probably served as drinking vessels, or for eating purposes.

There are some large, wide open bowls, but they account for only about 8% of the total. Rare exceptions are such bowls as 52 of type 7a and bowl 71 of type 9a (see plate VIII No 71). Their diameters range from 26.8 to 44 cms, the probable explanation for this being that ordinary food-stuffs were customarily served in such communal bowls, from which the diner helped himself with his hands rather than from individual bowls and plates. There are two unusual bowls, 187 type 24 and 234, type misc. The diameter of both is uncertain, but perhaps they were deep or of medium depth. Both are large, heavy and thick, but their function is

ZUBAIDAH FORM TYPOLOGY
BOWL TYPES

Types		Surface	TRENCH–I Phase–? 1 2 3 4 5 6	Total	TRENCH:II Phase ? 4 6	Total	TRENCH–III Phase–I 4 5 6 7 8 9	Total	Ph VIII 3	Phase 2 1 2	Total	TRENCH IV Phase–I A 5 61 64 65 66 68 69 70	B 51 52 54 59 60	Total	Phase 2 A 34 36 39 41 42 43 47 48 49 50	B 20 22 26 28	Total	Phase 3 14 16 18 21 38	Total	Phase–? 1 2 3 4 5 6 7 8 9 10 11 12 13 15 17 18 19 23 25 26a 27 29 30 31 32 33 34 35 37 40 44 45 46 55 56 57 58 62 63 67	Total	TRENCH V Phase ? 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18	Total	Total Bowls
1			1	1										1		1			1 1	2			4
2	a	2					1 1	2		1 3	4			2	1 2	5	4	4	1 1 1	4	2 2	4	24
	b									1 1	1												1
	c									1	1												1
3	a									1 1	1	1	1		1	1			1 2	3	1 1 1	3	9
	b									1	1												2
4	a	1												1	1	2			1	1			3
	b	1																					1
	c	1	1	1																			2
5					1	1	1	1							1	1			2 1 1 2 2 1 2	11			14
6	a	1	1	1											2 2	4					1	3	9
7	a	1							1														2
8	a	1								1 1	1				1	1			1 1 1 2 1 2 2 2 1	12			3
	b									1 2	3												18
9	a	1					1	1		1	1	1	1	1	1	1	1	1	2 2 6 2 2	15	1 1 1	6	17
	b						1 1	1		1	1	1	2		1	1	1 2	3	1	2			12
	c													1									35
	d									1	1				2 2	5	3 1	4	3 2 2 5 3 2 2	19	1 1 1 3 2	8	1
10	a	1							1			1	1		1	1			1 1 1 1 1 1	8			9
	b														2								4
	c	1								1	1					2			1	2			3
11	a	2																	1 2 1 1	5			7
	b	1																					1
12	a	1								1	1												2
	b																						1
	c	1								1	1												1
13	a														1	1			1 1 1 1	2	1	1	4
	b		1	1											3	3				4			8
14	a	3			1	1						1	2	1		1			1 2 1	5			12
	b	1	1	1						1 1	2								1 1	2	1	1	8
	c			1						1	1				1 1 5	7			1 2 1 1 1	5	2 1	3	17
	d		1																				1
15	a									1	1				1	1			1 1 3	5	1	1	8
	b	1															1	1					2
16	a																1	1					1
	b	1																	1	1	1	1	3
17		1					1	1							1	1			1	1			3
18	a	1												2	2	4	1	1	1 1 1 1	4	1	1	11
	b						1	1		1 1	1												2
19	a																		1	1			1
	b																						1
	c	1	1	1																			1
20										1 1	2								1	1			3
21	a	1										1	1								1	1	12
	b																						2
22												1	1	1 1		2			1 1	2	1	1	6
23	a									1 1	1								1 1 1	3	1 1		6
	b									1 1	1				1	1							2
24		1	1	1			1	1															2
Misc		-					1	1	-														1
		25		10		2		9	2		27			9		46		16		118		36	300

Table:(1) Occurance of Bowl Types with total sherds by phases and levels

BOWLS = 51.10 % OF THE TOTAL OF ZUBAIDAH POTTERY (587).

unknown; perhaps they too functioned as communal food bowls like the previous ones (see Plate XX No 187 and PlXXXIV No 234.

A group of deep bowls with straight, vertical sides, a thin pointed lip and flaring or simple rounded rims, or occasionally with a profiled rim, were probably used as drinking cups, especially bowl 141 type 14d (see Plate XV). Noteworthy among this pottery are the small medium-depth bowls with vertical or slightly flaring sides (Plate X type 10a and b. These amount to approximately 3% of the total of this period. Another major characteristic of the bowls is the club-rim, flattened or grooved. This rim is common here and can be seen on several types of bowl, eg those with flaring sides, with incurving sides and on deep bowls. Again, type 3a and 3b are of the "Hellenistic" standard type; these have carinated sides, flaring or vertical, a pointed lip or a rounded lipped rim. (See Plate II type 3 a, b). Bowl 21, type 3b is unique; it is of fine clay with a red slip and dark red paint. Perhaps this vessel was imported into Zubaidah, most probably from Thaj, to judge from the dark red paint and red ware. Two other vessels of the "Hellenistic" type, also unique, are bowl 83, type 9d (Pl IX) and bowl 17, type 2c (Pl 11); no parallels have yet been found at Zubaidah. Bowl 83 is a small bowl with a simple incurving rim and straight sides; this is in fact the most popular shape on Hellenistic sites. Most other bowls of Hellenistic style are of the type 19a, b, c, with the short rim and with a pronounced edge round the rim interiorly (see Plate XVIIINos 164-7). The other bowl referred to above is a fish plate? bowl 17 again of a shape common Hellenistic sites, but its rim has a simple, rounded lip with several grooves on the outer surface. A distinctive bowl which could also be a unique piece, is bowl 16, type 2b, a medium-sized bowl with straight flaring sides and with a slightly conical

sharp-lipped rim. The main feature of this bowl is the broken part at the top of the rim. This could indicate some kind of appendage, perhaps a lug or an ear handle, but this is uncertain (Pl II).

One of the most salient features of this period is the presence of relatively large quantities of jars, as compared with other Arabian sites, especially in eastern central and northern Arabia. The jars form, in fact, about 23% of the vessels described as bowls and jars in this study. (Many similar jars from the Zubaidah of this later period are not included in this quantity). The most common type is the medium-long to long, vertical, concave-necked jar with an outcurving or vertical rim, and a simple or slightly thickened exterior. Jars of this type form about 29% of the total. The most distinctive of these latter is Type 5, with a long vertical neck such as jars 26 and 27 (See Plate XXXVII). A scarce variety among the jars of this period is the spouted one, only one glazed spouted jar having been found, in Trench I, layer 5. This was without a rim and base, and consisted only of a central body sherd with a spout; probably there had been a handle on the other side which had broken off. There is an absence of jugs, and since jugs are primarily used for dipping into fluids and pouring out, their absence strongly suggests that liquids were kept in smaller jars, or more probably, that they were not kept in jars at all, as these apparently had no lids or spouts. Probably, then, they were kept in special containers designed for both keeping and pouring; and the most readily available utensil which could serve both purposes was the qirba (skin bag). The qirba is the vessel or bag most commonly used until today for household liquids, such as water, milk and oil. It has the great advantage, in a hot climate of providing cold water, being closed entirely, so keeping the contents clean from dust and insects, it is also easy to hang up and carry.

ZUBAIDAH FORM TYPOLOGY
JAR TYPES

| Form Types | SURFACE | TRENCH – I | | TR–II | | TRENCH – III | | | TRENCH–IV | | |

Very remarkable at this site is the presence of large storage jars in great quantities, which account for about 25% of all the jars. These are wide and open-mouthed, with straight vertical or slightly incurving sides, and a few rare examples have slightly outcurving sides. Some have club rims or are slightly thickened exteriorly or interiorly - type 8b, 9a, b, 11a (see Plates XXXIX - XLIII).

The presence of these large storage jars at Zubaidah must surely have some significance, as yet unknown. Parr (Atlal 2) suggests that their presence at Zubaidah may be associated with a trading function, say the collection of palm oil, or, perhaps, reflect a local ceramic tradition, not represented north of the Nafud or east of the Dahna'a, but it seems much more likely that they were used as containers for the storage of dates for the year, as ripe dates can be gathered only in the summer; or alternatively, that they were used for "dibs," this latter being usually poured on to dates or mixed with them, and stored in large jars to keep the dates soft. This method in fact is still used in several parts of Arabia. Jar 5 and some body shers of jars have indeed some black deposits on the inner surface (Pl CI No b). These have not yet been chemically analysed but they could be the remains of some kind of substance kept in vessels, perhaps even of the 'dibs'. Large pottery jars for date storage are still in use at Zubaidah. Tin vessels are also now used for this purpose, but only for short periods and for the export of the surplus; a tin is not suitable for the long-term storage of dates, as it alters the colour and taste of the fruit.

These large jars could also have been used as burial jars for the dead in conformity with ancient religious beliefs, as yet imperfectly known, owing to limited excavation. Al Ubeedi states that in 1939 (1358H)

when the land was being prepared for planting "Nakhils" by digging long ditches in the el-Bassam date-palm grove at Zubaidah, a man called Mohammed Qublan found a large Jar which contained the remains of a human body. When the labourers broke the jar, the remains disintegrated and were blown away by the wind. This discovery of human remains in large jar suggests at least a possible function of the wide, open-mouthed jar and a possible method of burial.

Again, the site of Zubaidah is today a cultivated area, and it may well have been so in ancient times, seeing that chaff was used in large quantitites as a temper in the pottery, and that the presence of cereal impressions, especially barley impressions (see Pl.CVIII, no d, Jar 5) has been confirmed. Another factor in support of this view is the presence of abundant water just below the surface, and the presence of a spring near the main site; these points indicate that at any rate, some cultivation took place, so perhaps the large jars were used as grain storage jars. Whatever the true explanation may be it is unquestionable that the presence of such an exceptionally great number of jars must certainly have some singular significance, which is, at this time still unfortunately hidden; that is, as yet, no incontrovertible evidence of the exact functions of these large (and small) jars.

Among the Zubaidah pottery there is furthermore a scarcity of lids and lid-ledged vessels; only one lid-ledge rim-sherd of a jar has been found (Pl.XCVII, no. b, c J/133). The lid-ledge is here more pronounced on the inside while the rim itself is very short and has a simple rounded lip. Such lid-ledged vessels have not been found either in the eastern or in the northern province of Arabia. However, a great number of this type have been found at Hajar bin Humeid in the south of Arabia, but these are completely different from Jar 133 of Zubaidah, not only in the shape

ZUBAIDAH FORM TYPOLOGY
Base Types, Objecs & Body sherds

[a]

	TYPES		SURFACE	TRENCH–I Phase ? 1 2 3 4 5 6	Total	TRENCH–II Phase ? 1 4 6	Total	TRENCH–III Phase 1 4 5 6 7 8 9	Total	Phase 2 3	Phase 2 1 2	Total	Phase 1 A 52 61 64 65 66 68 69 70	Phase 1 B 51 53 54 59 60	Total	Phase 2 A 24 36 39 41 42 43 47 48 49 50	Phase 2 B 20 22 22 26 28	Total	TRENCH IV Phase 3 14 16 19 21 38	Total	Phase ? 1 2 3 4 5 6 7 8 9 10 11 12 13 15 17 18 19 23 25 27 29 30 31 32 33 34 35 37 40 44 45 46 55 56 57 58 62 63 67	Total	TRENCH V Phase ? 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18	Total	TOTAL
BASE TYPES	1			1	1					3 1	4	2				1	4	1		2 2	4			14
	2			1	1	1	1			2	2				1		1	2 1	3	1 1	3			17
	3			1 1 1	3					1 5 3	8		1	1		2 1 2	5	2	2	1 1 1 1 1 1 1 1 1 1	11	1		34
	4					1	1	1	1	2	2	1	1	2	1	1	2	1	1	1 1 1 1 1 1 1 1 1 1	11		1	18
	5												1	1		1 1	2							3
	6		1		1	1			1	6 2	7	1		1	2	1	5	1 1 1	3	1 1 1 1 1	7		1	27
	7		1	1						1	1									1 1	2			4
	8	a		1 1	2																			2
		b	1																					1
	9	a								4	4						2	2		1	1	1	2	9
		b								1 2	3												2	5
		c								1	1													1
	10		1																					1
	11		1																					1
	TOTAL		4		8		2		1	2	32			5			19		9		39		1	132

[b]

HANDLE	1	1	2 2	4			1	1																4
	2																							1
	3		1	1																				1
	4																							1
	Total	1		5				1																7
INCENSE BURNER	1	2																		1				2
	2																							1
	Total	2																						3
SPOUT							1	1																1
TUYERE?							1	1																1
BOSS		1					1	1																2
BODY SHERDS	Decorated	8					1	1												2		2		10
	Burnished											1 1 1		1		1	3	1 1	2	4		1 1		12
	Blazed	2	2	2												1	1			2				4
	Token?																			3				3
	Coarse	1			2	2	2 2 1 2 1 3	11				2 2 3 1 2		10										21

Total body-shirds = 50

Tabl: [3A] a– Occurance of the Base Types.
b– Occurance of Handle, Incense Burner Types, Objects, and Body sherds.

		%
Bowls	300	51 10
Jars	091	15 50
Bases	132	22 48
Body Sherds	050	08 51
Hanles	07	01 00
Others	07	01 19
Total	587	

Table [3B]

ZUBAIDAH SURFACE FINISH & DECORATION

TRENCH			SURFACE	TRENCH–I Phase ? 1 2 3 4 5 6	Total	TRENCH II Phase ? 1 4 6	Total	TRENCH–III Phase–1 4 5 6 7 8 9	Total	Ph	Phase 2 1 2	Total	Phase—1 A 52 61 64 65 66 68 69 70	Phase—1 B 51 53 54 59 60	Total	Phase—2 A 24 36 39 41 42 43 47 48 49 50	Phase—2 B 20 22 22 26 28	Total	TRENCH–IV Phase–3 14 16 19 21 38	Total	Phase '—? 1 2 3 4 5 6 7 8 9 10 11 12 13 15 17 18 19 23 25 27 29 30 31 32 33 34 35 37 40 44 45 46 55 56 57 58 62 63 67	Total	TRENCH–V Phase–? 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18	Total	TOTAL	%
SURFACE FINISH	Plain	One side	11	5 3	8	1 1	2	1	1	8 3	11	2		2				2	2	1	1	1	6		3	47	8 00
		Both side	4	4 5 2 1 4	16	1 1	2	1 1 1 2	5	1 4	4	1	1 2	4		1	1		2	1	1	1 2 3 1 1 4 1 1 1	16		8	63	10 73
		Total	15		24		4		6	1	15	8							4		2		22		11	110	18 73
	Slip	One side	25	3 3 1	7	1	1	3 1	4	15 5	20						2 2	4	2 2	4	4 2	1 3 2	18	1	7	90	15 33
		Both side	47	13 7 4 5	29	1	1	4 3 1 4 1	13	2 26 29	55	1	1	2	2 5		2 1 4 3	17	2 1 4 1	8	5 2 2 4	4 2 9 1 4 1 2 1 2 1 1 1	42	2 1 1 3 2 8 1	16	232	39 52
		Total	72		36		2		17	2	75			2				21		12		60		23	322	54 85
	Wash	One side	2	1 1 1	3			1	1	4 2 2	4		1	1			1 1 1	3	1	1	3 1 1 1 1 1 21	12	1 1 2	4	35	5 98
		Both side	1							2	2								1	1	1 1 1 1	4			H	1 36
		Total	3		3				1	4	6	1		3				3		2		16		4	43	7 32
	Burnishing											1	1 2		1		1 1	3	3 2	5	2 1 1	5	1 1 2		17	2 50
	Glzing		2	3	3																1	1			6	1 00
DECORATION	Straight Horizontal Line		7	3 1	4					3 2	5				1 1		1 1 1	5	1 2	3	1 1 2 3 2 1 1	11	1 2 3 1 1	7	42	
	Wavy Line		2							1	1												2	5		
	Crescent shaped Impression		1																					1		
	Impressed Circular Dots		2																		1			3		
	Thumb or Finger Impression		1							2 2														3		
	Nail Impression		3																					3		
	Straight Horizontal+Vertical Line		3																					3		
	Inscription		1																					1		
	Total		20		4						8							5		3		12		8	61	10 38
	Painting	All over	2	1	1					1 1	2						1	1			1 1	2			8	1 38
		Bands	1	1	1					4	4										2	6	1	1	12	2 00
		Total	3		2						6											7			20	1 40
	Applied Ridge		4	1	1			1	1		1				1			2	1	1	1	3		1	14	2 38

Table:(5) Occurance of Surface Finish and Decoration by Phase and levels

Decorated = 16.88 % of Zubaidah total pottery
Incised = 64 % of the total of Decorated pottery
Painted = 21 % - - - -
Applied 14 % - - - -

but in the fabric itself. This jar is unique in that no parallel has been found, but perhaps only owing to the small amount of excavation and it is very difficult to say whether it was locally made or imported. The fabric is sandy, with very small pieces of chopped chaff, and thus similar to that of the other sandy vessels of Zubaidah. The shape of the jar is odd and the technique highly developed. Most of the vessels do not demonstrate such a highly developed technique, and this fact by itself suggests that it may have been imported into Zubaidah; but from which region and which site it is impossible to suggest, because of the absence of any parallels from any Arabian sites. On the other hand, on the basis of the fabric and of this very absence of parallels from other Arabian sites, a local origin seems plausible too. If this is so, it means that the technique reached a highly developed stage in what seems to be the latest phase.

The absence of lids and the scarcity of lid-ledged vessels are indeed puzzling, as it was always important to keep all vessels, especially storage jars sealed. This was particularly important on this site because it was surrounded by sand-dunes and was windy most of the year, but especially in the summers, so it was most essential to protect food stuffs from wind blown dust and silt, as well as from insects. The question then arises: how did the folk manage to keep their food clean? The strange absence of lids and the scarcity of lid-ledged vessels do not make it easy to give an answer. On the other hand, it is difficult to believe that the ancient inhabitants of Zubaidah were not in any way anxious to keep their food clean. They, obviously must have used something for this purpose, perhaps some organic material, such as skin, wood, basketry or simply a heavy cloth, for covering the mouth of the

vessel and be securing some such material with a strong around the neck; this organic material would of course have decayed and disappeared over the ages.

To come now to bases, the characteristic form of Zubaidah base is the flat base (in a variety of types) with rounded or slightly pronounced corners, or with flat-raised or slightly raised discs. Such features are found on approximately 60% of all the bases, probably in general of bowls and small jars, except for bases 9, 16 and 21, which are perhaps of heavy jars (See Pl.LX). The only unusual base among them is base 34 of Type 5, which has a higher disc than usual (See Pl.LXI Type 5). Unlike the position in south west Arabia, here at Zubaidah high or extremely high ring-bases are not found, but a few bases of the low ring base type 7 and 8 are found (Pl.LXII nos 45-51). The other most common type of base is type 9, ie the high pedestal base (See Pl.LXII and Pl.LXIIItype 9). This type is also common in southern Arabia and Al Fau. An unusual and indeed unique piece of a base of type 2 is found here at Zubaidah, base 10 Pl.CVII no. a. This base has been discussed in this Chapter under the method of manufacture. A similar badly made base was, by the way, found at Failaqa during the examination of its material.

Handles were neither very common nor of much interest to the potters and inhabitants in the various periods of the site's existence as only four have been found. (See Pl.LXXXIII, no. g and Pl.LXVIII no. 4). Handle 4 is broken and badly weathered. The hole of the handle was probably made by inserting a squared section bar while the pot was still wet and pulling this bar out when the vessel was the green-hard stage so that on the inside there was a clean, square cut. (See Pl.LXXXIII no g and Pl.LXVIII no 4). Jar 1333 of a miscallaneous type of lid-ledged jar

(mentioned above) also has a broken horizontal ledged handle.

The use of incense burners seems to have been quite common over the whole of Arabia, because they are found in most Arabian sites. Some of them are undecorated, others have incised decoration, some are square in shape and others are oblong. Three pieces of three separate incense burners were found at Zubaidah, the most noticeable feature of which is simply that they are incised, as incised decoration is rare in Zubaidah. Probably all are square in shape.

At Zubaidah there is also a remarkable absence of pot/tery lamps, which one would have thought to be very necessary; there is not even one object among the excavated or collected sherds which suggest a lamp. What the means of lighting used at Zubaidah were, is uncertain. How did the folk manage? Did they use a bowl and simply put into it some oil or fat and a strip of cotton for the wick? It is impossible to answer this question at the moment, until the site has been more thoroughly excavated. Meanwhile, the speculation (it is no more) of Van Beek seems the most acceptable; he suggests* that the only objects showing traces of burning that could have been used for this purpose are those commonly known as "incense burners'; perhaps then, these served both functions.

One further point. Very conspicuous among this Zubaidah pottery is a very large foot or leg, from some kind of huge bowl or jar; or is it perhaps from some contribance for the utilisation of water, placed in an irrigation canal in order to divert its water into another field? (See Pl.LXXIV, no. 2)

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* Van. Beek, Hajar Bin Humeid ; (Baltimore, 1969), P. 100.

Fabric

The most characteristic feature of the fabric is the inclusion of chaff as the basic temper, in fact the favourite temper in the later period, Phase 2 and 3. White coarse pottery with large grits was the charactertic feature of the Phase I. Chaff is used with both fine and medium-fine clay, and also along with sand, but chiefly with the medium fine clay of Type B. See Table 4. Grits of different rocks are also used, but only secondarily and sandy wares are common in third place. There is a marked scarcity of the cream-yellow ware FII, only a few examples being found, but also a scarcity of the very fine red sandy ware, Type E (See Table 4). There are two examples of this type J64 Type 10 Pl.C no d and Pl.CIV no. a and bowl type 19a bowl 164 Pl.XVIII and Pl.C, no. e both probably imported to this site. In a very few examples, crushed pottery (grog) is also used as a temper.

Very characteristic of this pottery too is that the majority of the vessels are fired in a reducing atmosphere with a grey porous core, and that the paste is fired in different colours, chiefly red, buff-red brown and grey. The most dominant pottery at Zubaidah in all the occupation levels of the later period is unquestionably the chaff-tempered wares, which come in a variety of shapes and colours (mentioned above) and usually have a porous grey core (see Table 4 for the fabric classifications).

Surface Finish

The surfaces of the majority of the vessels are eroded or have only traces of coating, indicating that a slip, either on one or both sides, was common and in different colours, but chiefly in red. A very few examples bear traces of a wash in white, grey, green and cream. Nor is it certain whether burnishing was common or not, only

a few burnished sherds having been found, but from different levels of the certain and uncertain phases. The presence of burnished sherds in different levels, however, suggests that this technique was actually commonly practiced and that the burnishe disappeared from the surfaces of the sherds as a result of erosion. It seems, moreover, that decoration was not very common, and the most common decoration here is probably incision in different styles. Again, it cannot be sure whether painting was common or not, because of the badly worn surfaces of the vessels. It is noteworthy, that neither during the excavations nor on the surfaces was even one single example of stone ware found on the type of alabaster and steatite vessels found elsewhere.

Speaking generally, it can be taken for granted that at Zubaidah in the early period the pottery was manufactured in a very primitive style and there was no perceptible change during that period. Then abruptly this primitive style ceased and, after an interval of abandonment, a new style suddenly appeared without any apparent sequence or link between the two styles. There followed a long period of different occupation levels of different phases, but all of the same culture, a culture which continued sequentially and without any noticeable or distinctive development and which evolved only very slowly throughout the later period. In the later stages of the phase 2 and phase 3 the development of the skill of the pottery works becomes more evident. Nevertheless the new culture incorporated some of the style of the early period; there is an unmistakeable similarity in form, fabric and techniques. On the evidence of the presence of the new style in the upper levels of phase 2(b) and phase 3(b) and of the uncertain phase, it is probably that at this stage of the later period, there were more cultural contacts with the

neighbouring regions. The new style of pottery, examplified by the glazed, dark red painted, fine red sandy and black gritty wares could, of course, have been imported, but this is conjectural; these wares could also have been locally manufactured. And it must be added that, if the latter is the case, it means that in the latter stages of the later period, the pottery industry here attained and perfected highly developed techniques; but only further excavation on a large scale at this stage can prove or disprove this surmise.

CHRONOLOGY

Zubaidah Radio Carbon Determinations

(Geochrom Laboratories, Half life 5570)

Trench + Phase	Provenance			
I	I.4	1685 ± 130	265 ± 130 (= 135 - 395 ad)	GX 4823
	I.5	1835 ± 130	115 ± 130 (= 15bc- 245 ad)	GX 4822
III Intermediate	III.3	2925 ± 130	975 ± 130 (= 1105 - 845 bc)	GX 7106
Phase 1	III.7	3265 ± 150	1315 ± 150 (= 1465 - 1165 bc)	GX 7097
Phase 1	III.10	3140 ± 160	1190 ± 160 (= 1350 - 1030 bc)	GX 7105
IV Phase 3	IV.19	2085 ± 120	135 ± 120 (= 255 - 15 bc)	GX 7100
-	IV.28	150 ± 160	1800 ± 160 (= 1640 - 1960 ad)	GX 7108
Phase 2a	IV.36	2690 ± 145	740 ± 145 (= 885 - 595 bc)	GX 7096
Phase 1a	IV.52	2585 ± 170	635 ± 170 (= 805 - 465 bc)	GX 7107
Phase 1b	IV.53	2740 ± 165	790 ± 165 (= 955 - 625 bc)	GX 7099
Phase 1a	IV.65	2700 ± 200	750 ± 200 (= 950 - 550 bc)	GX 7109
Phase 1a	IV.66	2940 ± 145	990 ± 145 (= 1135 - 845 bc)	GX 7098

The date of sample GX 7108 (1640 - 1960 AD) from Trench IV Phase 2 is obviously an anomaly, and can only be explained by supposing that the sample was contaminated or was recent charcoal brought into its present position by rodent action.

130

C 14 DATE OF THE SITE OF ZUBAIDAH

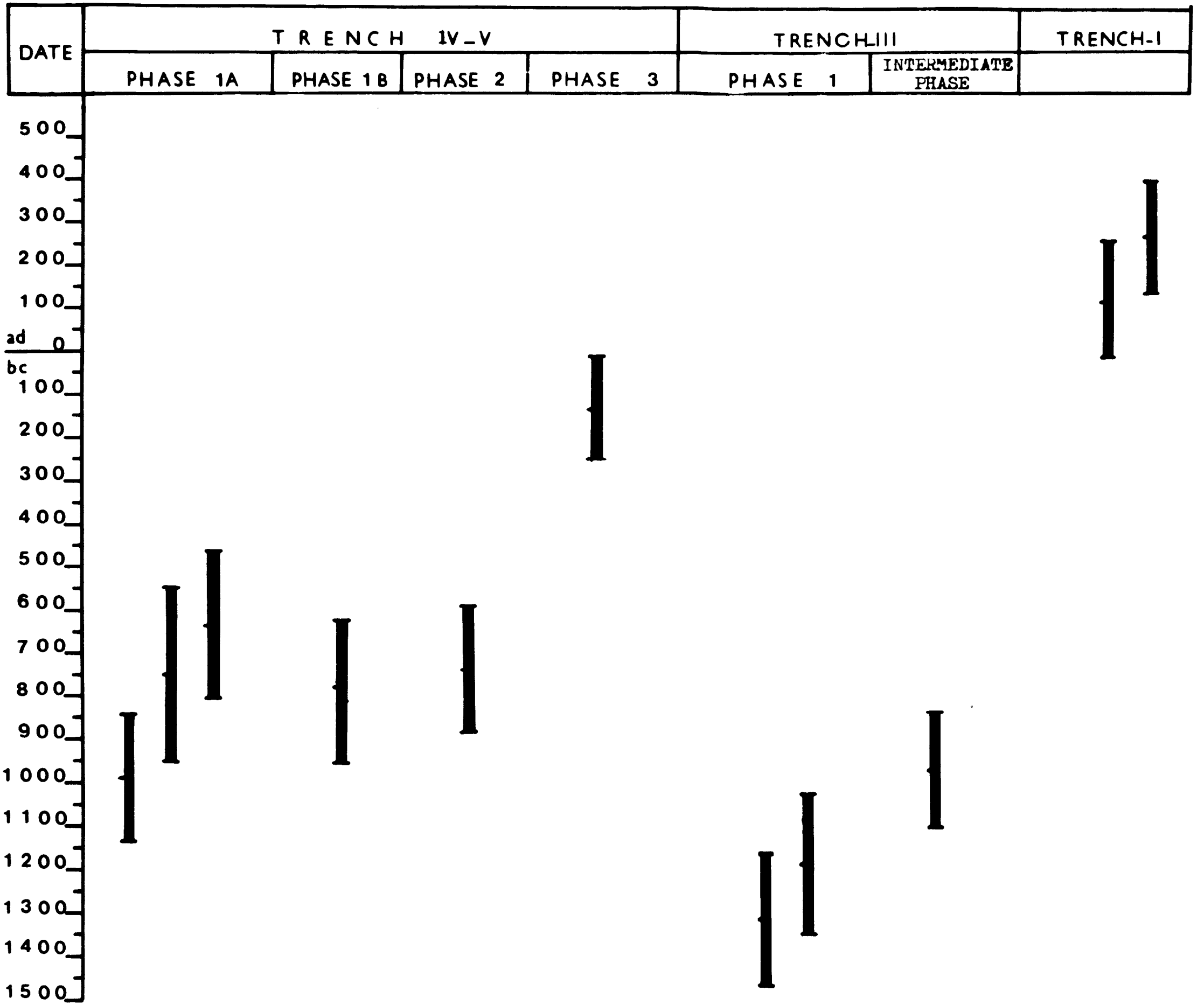


Fig.22

Zubaidah - Summary of Chronology

Although the series of C14 dates from Zubaidah is internally consistent (with the exception of sample GX7108, which is obviously a very recent intrusion), when the C14 evidence is correlated with the stratigraphic and the pottery evidence difficulties of interpretation arise.

In Trench III the earliest phase (1) associated with metallurgical activity is characterised solely by the coarse pottery (Ware A) and probably dates, according to C14, to somewhere in the latter part of the 2nd millennium BC. It is followed by a period of abandonment (the Intermediate Phase), during which a sand-dune accumulated, probably sometime during the early 1st millennium. Finally, this part of the site was re-occupied by people using only the 'standard' Zubaidah pottery.

In Trench IV/V an accumulation of sand comparable to that of the Intermediate Phase in Trench III occurs between Phases 1b and 2. On stratigraphic grounds therefore, it is tempting to equate Trench IV/V Phase 1a and b with Trench III phase 1. However, the 'standard' pottery already occurs first in Phase 1b, that is before the abandonment. Of the 14 sherds recorded from Phase 1b, ten were of standard type and four were of the primitive coarse type. In Phase 1A all of the handful of sherds recovered (20 in total were of the coarse variety).

With such small quantities of pottery, and in view of the excavational and stratigraphic problems already described above, it is dangerous to place too much reliance on this evidence. The absence of 'standard' sherds from Phase 1A may be fortuitous, and a result of the very restricted exposure at this level. The pressence of a few

'primitive' sherds in Phase 1b may also be fortuitous, the result of ancient disturbances or excavation errors. On the other hand, it is by no means impossible that ten 'standard' sherds from Phase 1b are themselves intrusive, and that in Trench IV/V, as III? this standard pottery does not make its appearance until after the abandonment and the accumulation of sand. In other words, the real pottery content of both Phases 1a and 1b can only remain in doubt until more excavation is done on the site.

The date of the introduction of the 'standard' wares must also be in doubt therefore. They are certainly present by Phase 2A in Trench IV/V, the single C14 date from which lies between 885-595 BC. If they are already truly represented Phase 1b, then a date within the range 994-625 BC is indicated. Their apparent absence from Phase 1 of Trench III (for which a date within the range 1465-1030 BC is indicated) suggests that they do not pre-date the beginning of the 1st millennium. Further than this we cannot unfortunately go, in the present state of the evidence.

As for the later chronology of the 'standard' wares, the C14 determines from Trench 1 indicate that they continue into the 1st millennium AD, at least as late as the 2nd century AD and perhaps several centuries later still.

Within this long period it is difficult on the present evidence to discern any major developments in the pottery. The material from Trench IV Phases 2 and 3, Trench III Phase 2 and from Trenches II and I is all remakably homogeneous in respect of forms, wares, surface finish and decoration and the impression is of a basically static and conservative pottery tradition. Only in Trench

I and in Trench III Phase 2 do new categories appear, principally the glazed ware (Ware F1), the fine red painted ware (C1) and the fine sandy ware (E), which are all probably imports to Zubaidah, dating to the early 1st millennium AD.

CHAPTER II

SOUTH WESTERN ARABIA

General Background of the Region

South-western Arabia has always been one of the most populous and productive regions of the Arabian Peninsula, as is known from many ancient remains; very few of these, however, have yet been fully investigated by modern methods. This region, by its very situation, has enjoyed strategic and economic advantages from the earliest times. Greatly favoured by nature its mountainous character has ensured regular and ample seasonal rainfalls, of which man has taken full advantage by developing methods of water storage, terracing and irrigation whereby the intensive cultivation of the land has been made possible. On this agriculture, village and urban civilisation has been created wherein useful skills, including that of writing could thrive.

A main source of the wealth and prosperity of this region has, of course, always been trade. The principal export was incense gums (frankincense and myrrh), which held a religious significance and were also of great importance in the life of the peoples of the ancient Near East and Mediterranean. This was a need which the South Arabians strove at all times to meet. The trade was carried on by sea and also by caravan routes which had long been opened across the Arabian Peninsula in different directions (See Figure 1). In one way and another, South Arabia thus became a 'hinge' in the commerce of the ancient world - between East and West.

This region was inhabited from the earliest historical times by certain main groups of people, each group endeavouring to form itself

into an autonomous state or kingdom. The history of these small kingdoms is one of constant warfare and changing frontiers, as first one state held the supremacy and then another. These groups of people in South-Western Arabia were among the earliest to possess a unique fairly uniform, and advanced civilisation, extending over a period of some 1,5000 years; and each of these groups had played an important role in the ancient history of Arabia. Some brief notes on the South-Western Arabian Kingdoms [23] will therefore not be out of place here.

The kingdom that first controlled the inland part of the trade was the powerful Kingdom of Saba, [24] from its second capital at Marib. At another time it was the Kingdom of Ausan that was foremost in trading worlds. In the fifth century, the Sabaeans transferred their capital from Sirwah to Marib and at this time they over-rule most of the coastal states and conquered Ausan. At the same time Saba seems to have encouraged the development of a trading colony on the Abyssinian coast.[25]

The main cultural achievement of the Sabaeans was the cultivation of this area by means of a magnificent irrigation system, their most enduring monument being the great Marib Dam. Only after Sabaean power weakened did the other tribes come into their own as fully independent kingdoms. The Sabaeans independence probably ended in 115 BC or 109 BC by the Himyars. [26]

The kingdom of Qataban [27] was the next to rise to power while the kingdom of Main [28] also grew in importance and took part in the breaking of the power of the Sabaean. The Minaean capital was Karna or Qarnawu, it flourished abundantly on the basis of its trade which was extended eastwards to Gerrha and north east to Mesopotamia, and northwards

to Petra, establishing a colony in Dedan (Al-Ula) perhaps in the first half of the third century BC; as suggested by Doe.[29] The independence of the Main kingdom was perhaps at an end by 115BC with the appearance of the new Sabaean era of the Himyars,[30] with Qatabun reigning supreme, a new state of Himyar[31] came into being and set out in its turn to conquer the country.

The kingdom of Hadramaut[32] which was situated to the east of Qataban and whose capital was Shabwa, i.e., the "Sabota" of Pliny, took the opportunity at this time of conquering part of Qataban themselves. Timna the capital was destroyed about AD 100.

The kingdom very probably extended southwards to the coastal line, including the Zafar (Dhufar) area in Qamr Bay "the region where the frankincense grows". Hadramaut thus played an important role in trade because of the strategic position of Shabwa, which in fact controlled the entrance to the main wadi from the south, and also covered the profitable incense trade on the route from the port of Quana to Al-Abr. This trade was at length extended by sea direct to India and East Africa, and also by the caravan route which led across Arabia right through Shabwa and Qarnawu (Ma'in), as well as through Marib. This kingdom was obliged to struggle constantly with both the Saba'ean and Himyar kingdoms[33] until the mid-fourth century AD, when it came at last under the control of the Sabaean-Himyari rulers. The port of Qana[34] was taken and Shabwa the capital was sacked. The Abyssinians (Habasat) invaded South-Western Arabia in the third century AD and for a while a large part of the country on the west coast was under their rule.

Christianity[35] was probably first introduced into south-western Arabia in AD 350, when the Himyari king was baptised,[36] and the

Abyssinian troops withdrew. In the next century however, the ruler 'Abukarib" As'ad, adopted Judaism, a large number of Christians were martyred at Najran and the Abyssinians returned to lend support to their faith. Later the Abyssinians were finally driven out by the Persians who wished to control the South Arabian coastline with its Red Sea trade. This Persian satraphy in South Western Arabia maintained itself until it subsequently collapsed before the rise of Islam in the seventh century AD.

The Geography

South-Western Arabia is a mountainous country with narrow wadis emptying into the arid level desert. Agriculture settlements are to be found in these wadis wherever the seasonal floods can be harnessed and the fresh silt collected. This part of Arabia extends from the Red Sea along the southern coastline to the Dhufar region. The coastal terrain consists for the most part of sandy plains. In the South-West corner are the massive rock outcrops and ranges of mountains (Yemen mountains), many of the rock outcrops being the remains of ancient volcanoes.

The area of Hadhramaut is in the form of a large plateau interspersed with eroded cliffs and wadis, the main wadi is the Wadi Hadhramaut, while at Dhufar within the Qamar Bay is the Qara Mountain range This latter is the locality where from ancient times frankincense of the best quality has been found to grow naturally and in abundance. This whole region has an age-old strategic significance because it lies on the two seas, and commands the entrances to the ancient harbours, Mocha on the Red Sea, and Aden, Mukalla and Husnal Ghurab (Qana) on the south coast (Arabian Sea), in addition to the Gate of

Al-Mindab on the Red Sea.

Climate

In South-Western Arabia the climate is strongly characterised by the two seasonal monsoons, the Wouth-west (sandy and very hot) and the north-east (cool) both very familiar to the early sailors. Unlike those of Central Arabia, the rains here fall very heavily during the summer more especially on the Yemen Mountains, the western hills and the Jol of the Hadramaut, because of the seasonal monsoon (south-west). These inland storms are sometimes surprisingly sudden and violent, causing immediate flash-floods (sails) and turning dry wadis into raging torrents. These floods have from ancient times been harnessed by man to irrigate the land in the agricultural areas for otherwise, and far more often, the floods merely subside and go into subterranean storage.

It seems very probable that this region of Arabia was in no way more fertile in the time of the ancient tribes than it is today, to judge from the presence of a great number of rain-water channels and abandoned irrigation systems; indeed, these suggest that the climate has not changed substantially in three thousand years. We are surely justified in concluding that the development of the ancient sub-civilisation of this region did not depend only on a busy and wide spread trade, but also and no less - on the development of efficient methods of irrigation and dry farming. The ruins of the ancient irrigation systems witness to a good deal of practical experience and a high standard of techniqal ability.

The Ancient Sites in South-West Arabia

There are quite literally hundreds of ancient sites of different periods in South-Western Arabia still largely unexplored, because

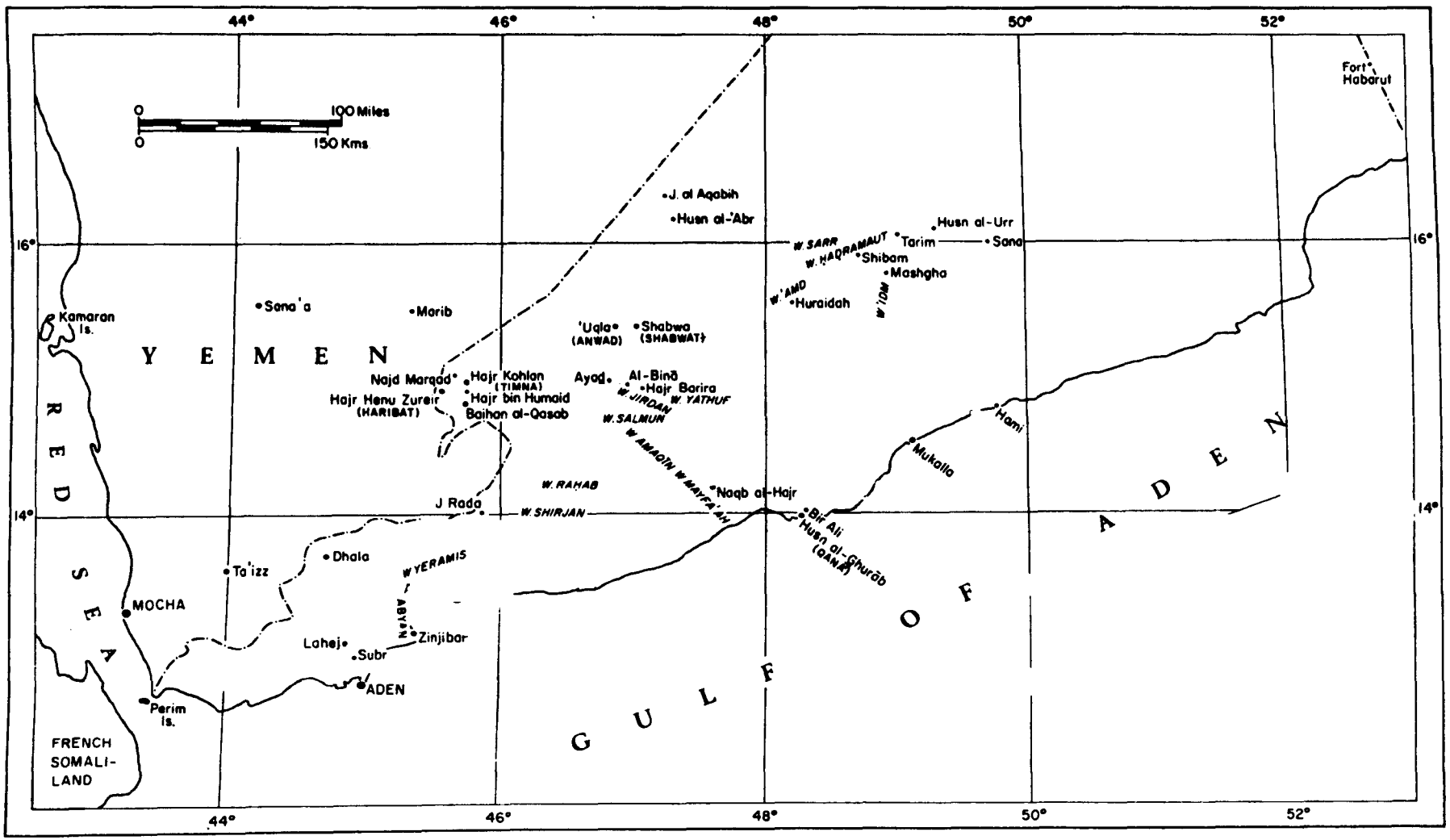
most of the studies hitherto carried out in this region have been surface studies, and mostly based on the sporadic references to be found in ancient annals, laws and literature. No archaeological excavation has been done except at a few sites specially Hajar bin Humeid and Hureidah (see Figure 4 for the south-west Arabian sites).

The pottery yielded by each of these two excavated sites will therefore be discussed separately, so as to provide the elements of a comparative and chronological study of this pottery and that of the other sites in the Arabian Peninsula; not, however, in great detail since the pottery of both the above-mentioned sites has already been published and classified in a thorough and competent manner. Those other sites of this region which have been surveyed by Harding will be mentioned by their names only, because they have not been excavated; and the pottery here found and in part described will also be discussed only briefly as one unit, because it all came from the surface collection and not from the stratigraphy. In any case, the amount of the published pottery of each site is very small and sometimes no complete descriptions have been offered. And finally this pottery is very probably homogeneous for the most part. But all the Form-types, Fabric-types "if there is any", surface finishes and decorations from these sites are shown in the main chart of Arabian pottery, and, hence one can easily interpret the information about the pottery of each site.

I-HAJAR BIN HUMEID (H.B.H.) [37]

The Location

This site lies in Wadi Baihan, near the mouth of wadi Mablaq about fifty-one miles south, south-west of Marib. Wadi Baihan itself is a broad wadi, bordered on both sides by sand and silt



A general map of South-west Arabia **Fig.4**

buttes as well as fields; it is also bounded to the east and west by a steep wall of metamorphic rock which slopes from south to north towards the sands of Ramlat Sabatein. Within the wadi are vast areas that clearly were once ancient fields, irrigated by sluice gates.

In Wadi Baihan there are two passes which probably facilitated the control of the canal caravans. These passes are:

a) The Aqaba Najd Marqad, close to the sand sea and

b) The Aqaba Mablaqa.

The first of these lies between the mouths of Wadi Baihan and Harib; it is a paved roadway which probably served as a customs post and as a direct route westwards to Marib; the second leads westwards across a narrow paved roadway, over the mountains to Hajar Azzuzeir and then through Marib on the long journey to Gaza. Because of the location of Hajar bin Humeid at the mouth of the Wadi Mablaqa, it is very probable that this ancient town controlled the east entrance to this strategic pass and that it also served as a customs depot for the Kingdom of Qataban.[38]

Description of the Site

The site is a mound, roughly oval in shape and relatively large; on the 10 m contour, it measures approximately 290 m long and 180 m wide. A part of the west side of the mound has unfortunately been destroyed, either by soil erosion, flash floods or human excavation or all three causes combined. Moreover, the lower portions of the mound have been cut away in recent times during the construction of an irrigation canal, and the collapse on this site has destroyed a portion of each stratum, thus leaving partial remains of buildings exposed. In Hajar bin Humeid itself, no single trace of any fortifications has been found, so it is unclear if these existed or not. The

surfaces of the mound are covered with sand, broken stones and scrub and in many places the walls of the ancient buildings are visible. The name of the site, "Hajar bin Humeid", means "town or village of the son of Humeid". Maria Höfner and Von Wissman [39] have suggested that the ancient name of the town was Dhu Ghayl or Dhu Ghaylan, and that it was build by Yadi"ab Ghaylan; but no evidence was found during the excavation of this site to prove or disprove this suggestion.

The History of the Excavation*

The site was discovered in 1948 by Nigel Groom, a British Officer working in Wadi Baihan. In 1950 the South Arabian Expedition of the American Foundation for the Study of Man arrived at Wadi Baihan. The leader of the expedition was Wendell Phillips, and the Archaeological Director of the site was W.F. Albright. They selected this site, and a small eroded area on the west side of the mound was excavated. Another area on the west side was selected for excavation, and also an area on the south side of the former excavation, to facilitate the clearance of an important building. During the seven weeks of the excavation, four strata were uncovered. The strata were planned, the area was mapped and the ancient irrigation system was investigated. Also a small tomb was located and cleared, to the east of the site. The second and final campaign at the site was in 1951 under the supervision of W.F. Albright.

The Excavation and the Stratigraphy

Don W. Dragoo and Gus van Beek made excavations at HBH and in so doing enlarged the area by straightening and stepping the east end of the earth and reaching the earliest levels of the site. At this site, with its 15 mm of occupation debris, eighteen strata have been found, from strata which was "the earliest occupation level" to

* see also:
Pirenne J. Syria , 51 , "Hajar Bin Humeid" , Revue d Art Oriental et d Archeologie Beyrouth.(Paris,1974), PP.137-170 .

stratum A "the latest level". The total area excavated in stratum A was 392 sq. m., while that in stratum S was only 31 sq. m.; but probably this excavated area was in fact of reasonably adequate size because it served to reveal the sequence of the strata. With these levels fresh insights were found into the architectures of buildings and living floors.

The Reliability of the Pre-Islamic Pottery of HBH

It can confidently be claimed that the Pre-Islamic pottery of this site does provide reliable archaeological evidence for a comparison with as well as for a chronology of the Pre-Islamic pottery of the other undated sites in the Arabian Peninsula,and particularly the Zubaidah pottery, for the following reasons. First of all, the HBH pottery came from a large excavation of a large site, and the pottery was associated with the building and the living levels of no fewer than 18 strata from S - A, which apparently, show the complete sequence of the occupation levels. This means that the pottery from these strata shows also the complete sequence of its own development throughout the long history of HBH, without any material interruption, from the early occupation level Stratum S to the late Stratum A.

Again, the strategic location of the site points to its economic and cultural importance, and perhaps indicates that it played a vital role in ancient trade during the Qatabanian kingdom, and enjoyed commercial relations with the other ancient townships, both inside and outside Arabia. The HBH pottery also has some further chronological value in that with it is associated some imported pottery

The site itself has been dated on the basis of a variety of objects, including the pottery itself; the pre-Islamic pottery of this site does therefore provide reliable and significant evidence for

the dating of the yet undated pottery of the other pre-Islamic Arabian sites, and is also most valuable for a comparative study of the pre-Islamic Arabian pottery.

The Pottery from HBH

Most of the pottery is from the site of Hajar bin Humeid itself (the mound), [40] very little having been found in the Hajar bin Humeid tomb. Furthermore, all the pottery of the mound excavation came from the strata associated with buildings and living floors. However, all the pottery both from the mound and the tomb is here treated as one unit, because it is broadly speaking homogeneous. Fortunately, the quantity of pottery from Hajar bin Humeid is great in comparison with that from other sites in Arabia.

Form Typology

Van Beek has classified this pottery on the basis of the Fabric. Here it is classified primarily on the basis of the Form and only secondarily on the basis of the Fabric. The reasons for this classification have been given in the discussion of the main classifications of Arabian pottery in the Introduction. In the classification of the HBH pottery, those examples which are similar or fairly similar to the Form types of Zubaidah, Pottery are given the same Form type number, but if there is a new form type at HBH, it is given a new Form-type number. The similar examples from HBH do not therefore receive a description either in the catalogue or in the Form list; but those new examples which are classified under a new Form type do of course, receive a description both in the catalogue and in the Form-list, as well as an illustration in the plates. However, all the Form types of HBH pottery are shown in the special charts, compiled on the basis

HAJAR BIN HUMEID

FORM TYPES

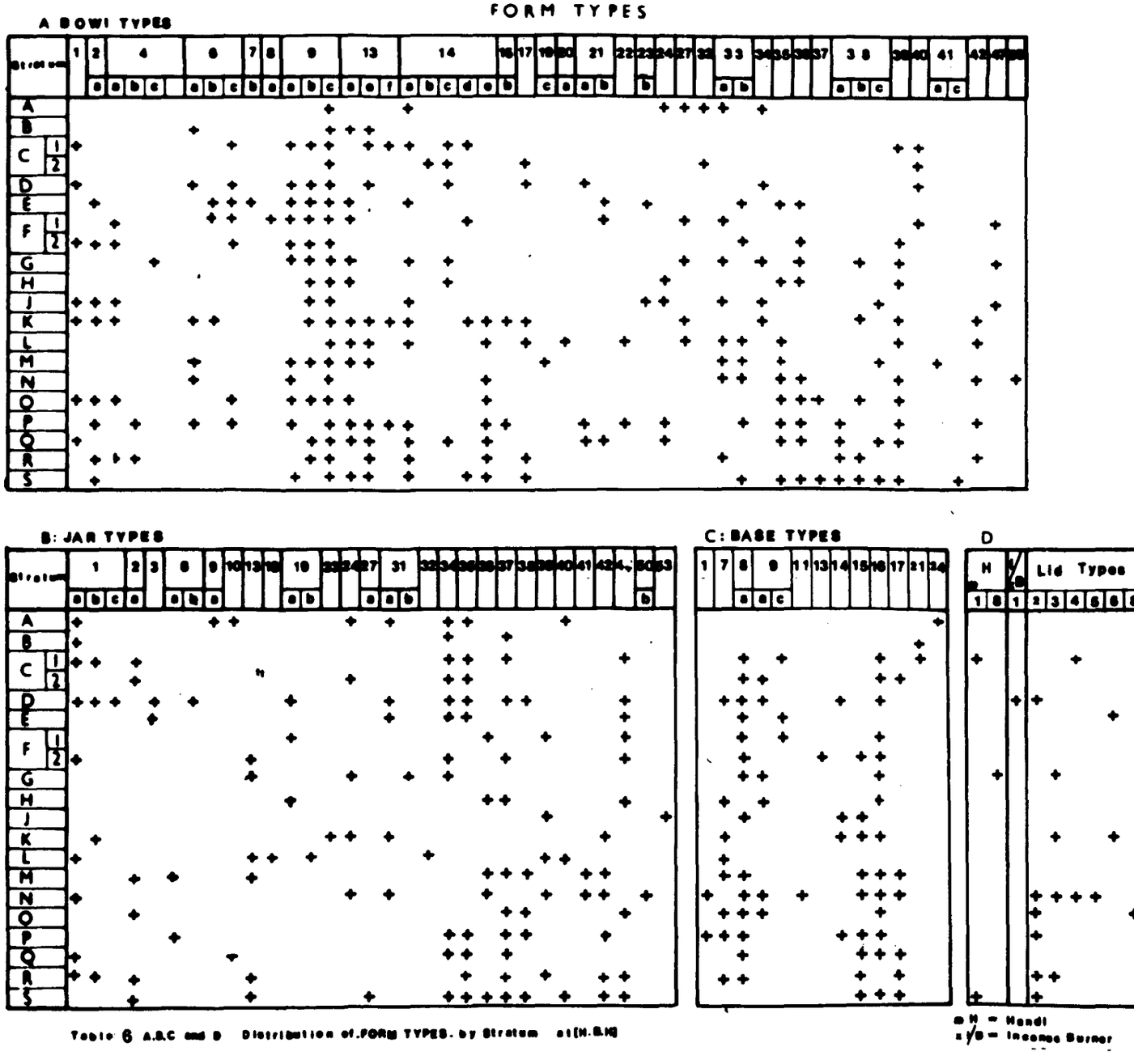


Table 6 A,B,C and D Distribution of FORM TYPES by Stratum at (H.S.H)

H = Handi
S = Incense Burner

of the strata, and these Form types are shown again in the major Form types charts of Arabia, for purposes of comparison.

Bowl Types:

Several Bowl Types have been found at HBH and 48 have been classified, 31 of them belonging to the main types and 17 to the sub- types. Table 6a shows the distribution of these types by strata. Most of the Bowl Types of HBH are similar to the major ones of Zubaidat, except for a few belonging to new types. These are 6c, (Pl.VI, no. 51) 13e, 13f (Pl.XIV) (14e, Pl.XVI), 27 (Pl.XXI), 34 (Pl.XXIII), 36, 37, 38a, b (Pl.XXIV) 38c, 39, 40, 41a (Pl.XXV) 42 (Pl.XXVI) and 59 (Pl.XXXII).

Jar types:

Different types of jars occur at HBH; 31 have been classified 26 being of the major types and only 5 of the sub-types. (See Table 6b for distribution of the jar types at HBH by strata. The majority of the Jar types are similar or fairly similar to the major jar types of Zubaidah, but there are also some new jar types which are given the new type-numbers. These are: 31b (Pl.LI), 35, 36, 37 (Pl.LII), 38, 39, 40 (Pl.LIII), 41, 42, 43 (Pl.LIV), 50b, Pl.LVII and 53. Plate LVIII no. 127. For descriptions see catalogue and Form list.

Base Types:

Twelve major base types and one sub-type have been found at HBH and Table 6c shows the Base Type distribution by strata. Six types are new, 14 (Pl.LXIV), 15, 16, 17 (Pl.LXV), 21 (Pl.LXVI) and 24 (Pl. LXVII) these new types of HBH. For descriptions see catalogue and Form list.

Handle Types:

Table 6d shows only three handle types from this site, all of

similar to the major Handle Types of Arabia.

Lid Types:

Six Lid Types have occurred at this site, all of them new, 2, 3, 4 (Pl.LXX), 5, 6 (Pl.LXXl) and 8 (Pl.LXXll). For descriptions see catalogue and Form list.

Incense Burner Types:

Only one type of incense burner has been found at this site, i.e. Type 1 (Table 6D).

All the Form types of HBH are also shown in the major Form types charts of Arabia; see following Tables for a comparison. Bowl types, Table 17, Jar types, Table 18, Base types, Table 19, Handle types, Table 19, Lid types, Table 19, Incense Burner Types, Table 19. A more detailed analyses of the form typology of the HBH pottery appears later in this chapter, under general remarks of HBH pottery.

FABRIC

The clay of the pre-Islamic pottery of HBH shows a variety of different colours, but the most common colours range from light red and through red to dark red, light brown, dark brown, pinkish red and grey. The consistency of the fabric varies too, ranging from coarse to medium fine, and sometimes to fine, but generally it is fairly well levigated. It seems likely that most of the pottery of this site was fired in an oxidising atmosphere; but a good number of the articles were certainly fired in a reducing atmosphere and have a grey or black core or a grey layer at one or both surfaces and some were fired grey throughout.

FABRIC TYPES (Table 7a)

Since the pottery of HBH has been discussed very ably and in detail by Van Beek, the classified Fabric types of HBH pottery are here discussed only very briefly, and on the same classificatory system as the Arabian pottery. As it has explained a similar or fairly similar fabric is given the same type number as that from another site, to which it bears a marked resemblance. If there is a completely new type of fabric, not found in the other sites, it is given a new type-number. Here then are some fabric-types found at HBH; (For the distribution of these Fabric Types at HBH by strata, see Table 7a)

Type B: This is a medium-fine ware with various types of temper; on the basis of the temper, this major type is divided into sub-types as follows:

Type B1:

Of medium-fine clay, basically chaff-tempered, this type is the most common at HBH. This chaff-temper dominates every stratum, and is by far the most preferred tempering material in all strata of the site. The chaff-impressions range from 0.7 to 3.5 mm in length and from 0.2 to 3.5 mm in width, but are chiefly from 4.0 to 9.0 mm in length and 0.4 to 1.0 mm in width. [1]

Type B11:

This ware is similar to ware B1, the only difference being that the clay includes pieces of grit which seem to have been added intentionally. These are of white or black gypsum and are of irregular shape, ranging in size from 0.3 - 2.0 mm.

Type D111

Sandy: This ware is rare at HBH; a total of six sherds only were found there being in face never more than one in any stratum. They were

fired to a rich red or reddish brown colour. The sand grains range in grain size from less than 0.4 mm to 2.0 mm and some of the sherds contain chaff as well. The sandy wares are as a rule coarse, dense, of heavy clay, well levigated and having few air bubbles. Fired chiefly in an oxidising oven, they have a grey core or a grey through-section, but are not grey on the surface. All the examples have a red slip applied to the outer surface, and three are burnished on the outer surface only.

Type F1:

This ware is glazed ware with a fine yellowish-cream paste, but only one example has been found at HBH and the paste is, in fact, of a light yellowish-brown colour. The glaze on the outer surface is olive and it has a yellowish-brown glaze on the inside. Base 73, Pl.LXVI

Type G:

This type is a coarse and gritty ware of mixed lithography, in other words containing pieces of different rocks, including steatite, occasionally with chaff as well, but only in very few examples. The clay is generally well levigated, but even so, some examples have air bubbles and voids. The colour paste commonly fires pale red, weak red, light reddish brown, light and dark grey and dark reddish-brown. The vessels were fired mostly in an oxidising atmosphere, but some sherds show a grey core or are grey throughout. 91% of these sherds have a slip on both surfaces and the rest only on the inner surface, and here the most common colours are light red to light reddish brown to dark reddish grey. 80% of the sherds of this ware are burnished all over or part of one or both surfaces, in vertical or horizontal strokes.

Again, most of these sherds are decorated by incision, making use of straight lines, wavy lines, punctuations, herringbones and inscriptions.

Some of them bear applied decorations, such as ridges, knobs, relief inscriptions and monograms.

Type H:

Basically, this again is a coarse ware and is conveniently divided into sub-types according to the type of material added as a temper. At HBH the tempering material is crushed steatite and chaff together, hence it may be sub-tpes to Hl. This ware of paste commonly fires dark grey to black, occasionally light grey, pale brown and brown, but the majority of the sherds of this ware have been fired black or very dark grey on both surfaces. The sections mostly have air bubbles.

The majority of the vessels of this ware are non-slipped but they were probably smoothed, the finer parts of the matrix being brought to the surface by rubbing while wet. Only a few sherds, as we have said, have a slip. Their surfaces are commonly dark grey to black, but some of their outer surfaces range from pinkish-grey to pale red, light yellowish-brown and light brownish grey. Most of the sherds are burnished and all the burnishing is horizontal and by hand. Three styles of decoration occur in this type: incised in horizontal lines, matt impressed and applied ridge.

Tempers

From the above survey of the Fabric types, it is evident that a variety of materials were used as tempers in the pre-Islamic pottery of HBH.

Chaff:[41]

Chaff was the most favoured material for a temper in the pre-Islamic pottery of HBH. In point of fact, it is found in all strata, and pottery tempered thus averages 83.5% of all the pottery of HBH, and dominates every stratum, the percentages ranging from a low of 73% in

Stratum D to a high of 96% in Stratum A. The chaff-impressions range from 0.7 to 3.5 mm in length and from 0.2 to 3.5 mm in width. [42] In some sherds, impressions of various seeds are also found, such as those of barley, oats, flax, millet, cummin, sorrel, corncockle, sesame and grape, possibly gleaned along with the chaff while sweeping, or from dried cattle, donkey or camel chips.

Steatite

The second temper used in the pre-Islamic pottery of HBH is crushed steatite, [43] which appears in all strata except the latest; steatite-tempered pottery amounts to 9% of the total. The steatite grits are angular and range in size from 0.7 to 0.3 mm to 3.5 x 3.0 mm, [44] and from the evidence available, the steatite was crushed and added intentionally as the temper. This steatite-tempered pottery was also petrographically analysed and showed fragments of various massive schistose rocks, a few minerals and an abundance of talc, serpentine, actinolite and chlorite. Van Beek suggests that the rock [45] from which this material weathered came from the mountains surrounding Wadi Baihan, while the significant percentage of this type of ware in the total pottery of the site surely indicates that it was manufactured in or near Wadi Baihan.

Mixed Tempers

Mixed tempered pottery at HBH amounts to 8% of the total, occurs in all strata, and clearly represents a number of different rocks, including crushed steatite and chaff. The temper includes fragments of schist and one or more of the following: tremolite, anthrophylite, talc, serpentine, feldspar, magnetite, hornblende and quartz. Some of the pieces of grit are rounded in shape and others are sub-angular; the steatite ranges in size from 2.0 x 1.6 mm to 6.0 x 3.0 mm while black stone ranges from 0.5 x 0.3 mm to 4.0 x 3.0 mm. White stone is rare and

ranges from 0.9 x 0.9 mm to 1.9 x 1.0 mm.[46] Large rounded pieces were probably present in the raw material and thus are accidental inclusions. Both the angular structure of the grits and the range in their sizes suggest that they were obtained by crushing and then added intentionally to the clay as a temper. Van Beek suggests[47] that they were locally prepared on the ground that all the rocks are locally available. This mixed tempered paste was used at HBH particularly in the making of large jars and small cylindrical jars.

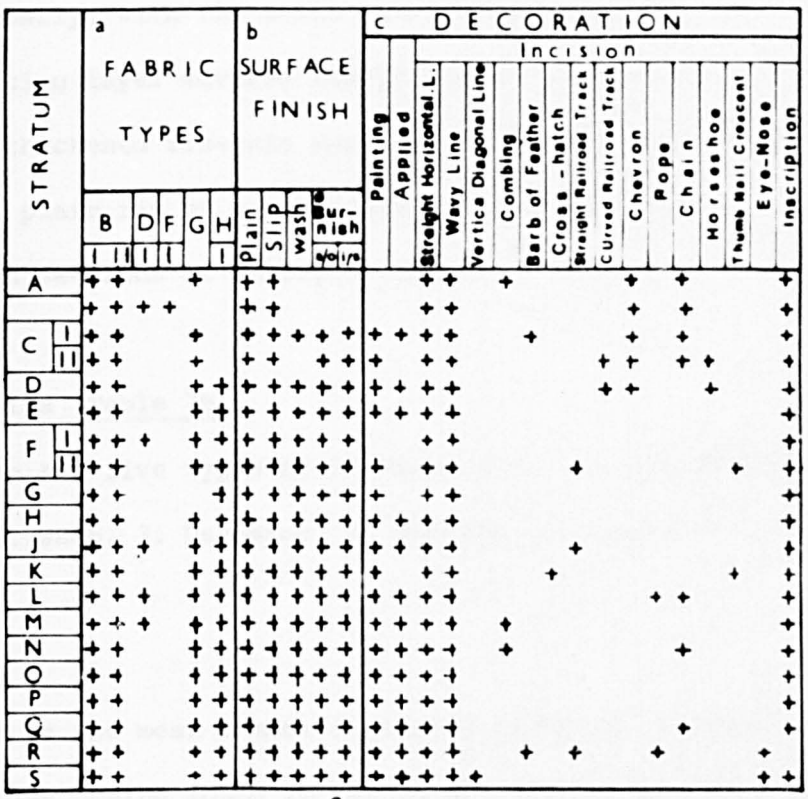
Sand:

Only a very few sandy sherds were found at this site and Van Beek[48] suggests that these were almost certainly imported into Hajar Bin Hummeid. This type of temper has already been discussed in this chapter, in Fabric Type D11.

From all the above, we may safely conclude that two major types of pottery occur at HBH, medium-fine with chaff temper or with pieces of grit, and coarse, either of crushed steatite or of mixed lithography. There are, it is true, two other types, but they are rare, i.e., sandy and glazed, the latter with a cream paste which changed colour to light brown, perhaps due to the firing, and very probably like-wise imported. All the Fabric types of the HBH pottery are also shown for comparative purposes in the major Table 20 of the Fabric Types of Arabian Pottery.

METHOD OF MANUFACTURE

Hajar bin Humeid pottery throughout the pre-Islamic erea was principally, or perhaps entirely hand-made, and several shaping techniques were used at this site, such as coiling, moulding and pressing (this latter method was also used at Zubaidah, and has been explained



Table(7) : Distribution of the Fabric Types, Surface Finish and Decoration by Stratum at Hajar Bin Humeid(H.B.H.)

in its main outlines in the Method of Manufacture, Zubaidah pottery. No doubt all the narrow necks of jars and all the ring bases were made separately and attached to their bodies at the green hard or white hard stage. Slabs or layers of clay were then applied to the surfaces to reinforce the joints, sometimes this operation was done incorrectly or even clumsily, with the result that if and when the pot later broke, the reinforcing layer severed itself cleanly from the pot itself. Externally thickened rim-jars were regularly made by adding a coil of clay to the plain rim of a pot; and, in similar fashion, all large jars were made in sections or multiple pieces. [49]

SURFACE FINISH (Table 7b)

There are five types of surface-finish on the pottery of HBH, 1. Slip, 2. Wash, 3. Uncoated, 4. Burnish, 5. Glaze. [50]

1. Slip

This is the most common finishing technique throughout the history of HBH, being found in 60% of all the pottery from the site. The slip was applied to one or both sides in different colours, ranging from light reddish-brown through light red to grey, but was commonly fired red. The dark reds, in general, predominate from strata S to D, decrease from Strata N to K, and then disappear in Stratum D, while the light reds are found in all strata, but are rare in the early strata. The slip, as we have seen, was probably applied by dripping, brushing or, but rarely, with a rag. Some bowls were coated with a slip over all the inner surface, but over a part only of the outer surface. Sometimes, the slip is very thick and sometimes it has crumbled or flaked off. A slip on both surfaces occurs in Strata S to H and a

combination of slip and wash is common in Strata J to D. Broadly speaking a slip on the inside only is common only in Stratum C.

2. Wash

This finish was normally applied after firing. It is found in 14% of the total pottery of HBH and occurs in Strata S to D. A wash was sometimes applied to uncoated wares, but commonly to wares that had already been slipped or burnished. The colour of the wash is red to dark red.

3. Uncoated Wares

Uncoated wares occur in a minority of the pottery from the site, averaging about 37% of the total; they occur in Strata S to D.

4. Burnish

A burnish was usually applied to a slipped ware, but not invariably; from this standpoint, we may suitably distinguish three major styles of surface treatment in accordance with the degree to which a vessel has, or has not, been burnished, viz:

1. The complete absence of burnishing,
2. The burnishing of both the inner and the outer surfaces,
3. The restriction of burnishing to the inner surface.

The total of burnished ware at HBH amounts to 55%. Burnishing on both surfaces accounts for 20% of all the pottery and burnishing on the inner surface only for 29% of the pottery. All this burnishing was probably done by hand; only 1% of the total is wheel-burnished, and this type can be identified by the fact that the strokes are pretty regular. Most of the burnishing strokes are irregular and tend to be erratic and spaced at uncertain intervals. Again, most of the burnishing is horizontal, only 3% of the total pottery being vertically burnished, [51] there may also be a combination of horizontal and vertical burnishing,

when the interior and part of the exterior, below the carination, are horizontally burnished, whilst the exterior, above the carination, is vertically burnished. It is perhaps worthwhile recording that there is only one example of pattern-burnishing at the site, in criss-cross style. A little thought will serve to show that there are two reasons for the art of burnishing, firstly to reduce the porosity of the pot, and secondly to create an attractive surface.

5. Glaze

Only one example of glazed pottery has been published and described by Van Beek. The glazing is here applied to both surfaces, the outer surface being glazed in olive colour and the inner surface in yellowish brown. Van Beek [52] here again suggests that this type of pottery was imported into HBH.

DECORATION (Table 7c)

Three types of decoration were used at HBH: [53] incision, painting and applied decoration, including zoomorphic figurines, monograms, groups of knobs, rope mouldings, and finger-impressed ridges. All the vessels with applied decoration come from the early and middle Strata S - L.

Incision:

The Incised Decoration at HBH amounts to 22% of the total pottery, and, for the most part, takes the form of lines of various kinds:

a. straight horizontal lines, either single or in groups.

b. common too, in incised line decoration, are wavy horizontal lines. Single wavy horizontal lines were undoubtedly the most favoured form of Incised Decoration not only at HBH but also in South Arabia, but frequently used also was a combination of such single straight and wavy lines.

c. there are also several complex incised designs at HBH. These are:

i. parallel vertical lines, joined by parallel oblique lines.

ii. the eye-nose design.

iii. rope designs, composed of an applied ridge with an oblique

iv. the "straight rail-road track"

v. "Barbs of a Feather"

vi. the cross-hatched filled lozenge

vii. the vertical crescent

viii. "Horse-shoes" or U-shaped incisions

ix. the "curved rail-road track"

x. Chevrons

xi. the "chair design"

xii. combing

xiii. incised inscriptions. These are at times incised under the base or on the inside of the rim, but mainly on the shoulder or the body (See Table 7c).

All such incised decorations are located on the outer surface of the vessel, the "eye-nose" design appearing on the handle. Most incisions were produced with a tool with a rounded end, but a few vessels were incised with a pointed tool; all incisions were commonly made when the vessel was in the green-hard stage.

Painting

Painted wares at HBH amount to 3% of all the pottery, so in general, painted decoration is rare at this site, as at all other South Arabian sites, and most of such pottery was found in Stratum N. The usual practice was to paint before firing. The painted motifs include horizontal lines; lines and bands, including concentric lines

and bands; barbs of a feather; cross-hatching with lattices, straight lines or triangles; polka dots and lines.

General Remarks on HBH Pottery

There are several features of the Hajar Bin Humaid pottery which are worthy of special note, as follows:

Firstly, there are more bowls than jars, and they are of simple shape, with curved or flaring sides and simple rims. An outstanding feature of these vessels is their large size, and some may have served as drinking cups. Some indeed have a diameter ranging from 35 to 50 cms or more, and these very large bowls probably, as suggested by Van Beek served as food-containers, out of which diners helped themselves with their hands, instead of using individual bowls. Such a custom would require very large containers. Lid-ledge jars, however, were obviously very popular at HBH as a great number of them with several different types of lid were found at the site. Difficult to account for, but very fascinating, are some cylindrical storage-jars with pointed bases. This form of jar is in fact, unusual in South Arabia.

Very characteristic of pre-Islamic pottery at Hajar bin Humeid is the ring-base, which is sometimes so high that it becomes a "trumpet-foot"; it is found on both bowls and jars. (See Plate LXIV no. 66 and Plate LXV nos 67, 68 and 69). Flat-bottomed, small disc, flat or concave bases are rare at HBH. Ear-handled bowls are likewise rare, only two examples occurring at this site, and rare too for some at present unknown reason are jugs, only a few sherds having been found. But a striking lacuna in our material here is the complete absence of lamps. Van Beek[54] points out (perhaps slily) that the only objects with traces of burning that might possibly have been used as lamps, are those commonly referred to as "incense burners" (see Tables 6a, b, and c for the Form Typology).

Table 7a shows that most of the pottery from this site is of medium-fine to coarse quality, but there are a few examples of fine wares. Chaff is the main temper, followed by crushed steatite or mixed lithography. Sandy wares are rare, some having doubtless been imported from Marib or Ethiopia. Glazed wares with a cream paste do not occur at this site, except for one example, which suggests that this was imported.

Table 7b shows that the most characteristic surface finish of the HBH pottery is the slip on the inner or outer or on both surfaces of the vessel. The most common colour for the slip is red, but colours range from light reddish brown to light red to grey.

Another very common aspect of HBH pottery, again of chronological significance (as shown in Table 7b) is the burnish which is generally applied to the slipped areas only. Burnishing was practiced either on the inner or the outer surface only, or on both surfaces of the vessel and the most common technique made use of horizontal strokes. Table 7c shows that at HBH two types of decoration were more common than burnishing, namely painting and the incision of the various designs; but the most characteristic decorative feature is the incised inscriptions on the vessels.

CHRONOLOGY OF THE HBH SITE

Hajar bin Humeid is unique in possessing the longest history of occupation of any pre-Islamic South Arabian site that has been excavated to date, and is itself probably one of the most ancient sites in South Arabia. Van Beek justifiably reminds that, with its 15 m of occupational debris, containing no fewer than eighteen strata, its time-span must have extended over many many centuries

and, he adds, its occupation appears to have been continuous.[55] The chronology of the site can be reconstructed from the evidence supplied by three methods, namely, Radiocarbon Dating, Style of Pottery and Style of Inscription.[56]

1. Radiocarbon Dating

During the excavation, samples of burnt wooden beams were salvaged for radiocarbon dating. The results are:

Sample H2684, Stratum Q, was dated twice, the average date being 796 BC.

Sample H1083 from Stratum G (S1-21) was dated 250 $\pm$ 75 BC

Sample H1280 from Stratum F1 (S1-19) was dated from 440 $\pm$ 70 BC

Sample H24 from Stratum B (S1-23) dated 335 $\pm$ 75 BC

The date 796 BC for Stratum Q was the earliest in time and probably correct. The dates of Strata, F, G and B cannot be reconciled. Van Beek[57] assumes that the Strata F1 and B beams were survivors from older wooden beams re-used in this context, and also assumed (with some justice) that there were errors in the dating of the samples from Strata G and B. Some additional radiocarbon tests have since been carried out as a further check; sample H 1083 from Stratum G gave the same date in both tests, and Sample H24 from Stratum B yielded the more reasonable date of 67 BC.

Hence the approximate dates of the Strata of HBH could be somewhat as follows:[58]

A.c. 2nd-4th or 5th AD	D.3rd BC
B.c. mid 1st-1st AD	E.
C. late 2nd BC-mid 1st AD	F. Late 5th-early 3rd BC

Gap

G.		L.)	
		)	-c 7th BC
H.)		M.)	
)			
J.)	6th-5th BC	N.)	
)		)	
K.)		O.)	-c 9th-8th BC
		)	
		P.)	

2. Style of Pottery

The second metnod of dating the pottery relies on the style of finish and the decorative motifs. One of these styles includes the extensive use of a burnished red slip, and was common in the early strata of the site. This technique, in a variety of stylistic combinations, was diffused throughout the north of Arabia, Palestine, Syro-Phoenicia and Western Mesopotamia during the first three centuries of the first millenium BC, subsequently spreading to other parts of the north, north-west and north-east of the Arabian Peninsula. In the north, this type of slip was applied to both surfaces of bowls during the tenth and ninth centuries; it was restricted to the inner surface and the top of the rim by the middle of the eighth century, a practice which continued throughout the seventh century. At Hajar bin Humeid, to be more specific, the application of a slip to both surfaces is the dominant style of Strata S to K; in Strata J and H both styles are found equally; and from Stratum G through A the restriction of the slip to the inner surface is usual. It can therefore be concluded that the style requiring a slip on both surfaces obtained equally at first in southern and northern Arabia; however, it persisted far longer in the south, beyond the middle of the eigth century, and indeed appears in the lower 9 strata for a further period of three or four centuries. The application of the slip even to the inner surface died out in the sixth century in the north, but actually

continued until the final occupation of Stratum A in the south. Interesting also is the custom of the application of a slip over a red burnish to the inner surface and part of the outer surface of bowls; here the slip extends from the rim downwards for several centimeters. This style occurs in the north (Palestine and Syria), and was used from the tenth to the seventh century BC; at Hajar bin Humeid it appears in Strata S to K, and, therefore provides useful corroborative evidence that Strata P, O and N belong to the ninth and eigth centuries BC with M, L and K falling in the seventh century BC.

The change in the colour of the slip from a dark red or reddish brown to a light red also has a chronological significance. On the basis of what we know of the colour of the slip in northern pottery we are entitled to assume that dark red is common in the earlier strata, i.e. S to K, and light red more common in Strata J to A; the dark red's major range extends from S to O, eigth Strata N and M are transitional periods. It is on such grounds as these that it has been suggested by Van Beek [59] that Strata S to O belong to the period between the eleventh and the end of the eighth centuries, and that Strata N and M fall, perhaps in the eighth century BC.

In this business of dating, a vertical burnish is a finish characteristic of the eleventh to the eighth centuries BC throughout the Levant and north-western Mesopotamia. At HBH a vertical burnish is found from Strata S to C2, but is more common from Strata S to P. Accordingly, Strata S to P might be dated between the late eleventh and the end of the eighth centuries BC and, more particularly, between the tenth and the ninth centuries BC.

In addition to the burnished red slip tradition, there are other similarities in decorative techniques and motifs, which are of chronological significance and which randomly occur, for instance, as the sole painted design. Occasionally, such techniques are used to fill in the ornamentation in a "barbs of a feather" motif but they also frequently occur as part of a painted design, featuring a row of dots bordered by one or two parallel horizontal lines. (See bowl 201, Type 37, Plate XXIV). This latter painted motif is dated to the ninth-eighth century BC, in north-western Mesopotamia. At HBH the painted-dot motif has a range from Stratum P to E and also to Stratum N. Van Beek [60] therefore suggests that Strata P to N may belong somewhere in the ninth-eighth centuries BC.

Another important decorative motif is a row of applied knobs on bowls and jars, a style which predominated in Palestine during the tenth and ninth centuries BC; at HBH these knobs appear on Bowl 203, Type 38b (Plate XXIV). They occur exclusively in Strata S and R and, therefore as Van Beek suggest, these strata must belong to the ninth and tenth centuries BC.

And then again, there are some complex forms at HBH, such as the footed bowl with a sharply drawn carination (Bowl /205 type 39, Plate XXV). This type of bowl unquestionably shares certain features with tenth and ninth century bowls with various sites in the north, and so there may well be some relationship between those from the north and ours from the south. Another such complex form is the large bowl, or jar, with a high ring-base (Bowl 204, type 38c, Plate XXV). This type appears at HBH, Stratum S, and a very similar form, with only minor differences, appears in the

Hammurabi and the Kassite periods in Babylon. The Kassite examples are certainly of the tenth century, whereas at HBH they are the earliest specimens of this type.

The steatite tempered vessels, common at Hureidha, have their counterparts, at HBH a fact which again has a chronological significance. (Ear handle bowls 209, Type 41c, Plate XXVI). This latter type was found in Stratum K at HBH and in Tombs A5 and A6 at Hureidha; these tombs have been approximately dated by the beads and seals found in them, the beads having affinities with beads from Syria, dating to the period from the seventh to fifth century BC and the seals having affinities with the Achaemenian style, and so belonging to the sixth to fourth centuries BC. Van Beek maintains that the beads and seals can hardly be later than the fourth century [61] and that the bowls may date from before the sixth century. Hence, a probably date for Stratum K is the middle centuries of the first millennium BC.

Imported Lead-Glazed Ware

There is a fragment of a lead-glazed crater with a decoration of moulded human figures. (Pl. LXVI no. 73). Because of the great resemblance of this HBH fragment to the lead-glazed ware of Tarsus, it has been very plausibly suggested that it was imported from Tarsus or its immediate vicinity in the second half of the first century BC, or in the first century AD; [62] it did, in fact, come from Stratum B. i.e. the Stratum already dated on other grounds between the middle of the first century BC and the end of the first century BC.

3. Style of Inscriptions

From the standpoint of reliable evidence, the inscription most

important for an absolute chronology for HBH is the one on H2C, a re-used piece placed upside down in the outer face of the court-wall, between Building A, and A4. Now James has dated Nabatum Tuhan and his son Martadum to about 338-4 AD., and since this stone clearly predates Stratum A, it must have originated in Stratum B, which is dated to the Hellenistic period, beginning with Alexander the Great and may very well also span the first century BC and the first century AD. In this same Stratum was also found a lead-glazed sherd, a fact which indicates that the B occupation is the nearest in time to the preparation of this inscription. Stratum C can hardly have descended into the first century AD, and it seems unlikely that Stratum A can have begun much before the last decade of the first century AD or more probably, the very beginning of the second century.[63]

The abrupt changes in the techniques used for finishing the pottery between Stratum D and C, and especially in the extent to which a burnished slip comes to be applied to the inner surface only, surely suggest a gap in occupation; these changes may be due to the arrival of a new school of potters at the site. However, the continuation of certain motifs from Stratum D to C suggests a fairly short interruption, not less than fifty, but certainly not more than one hundred years. It can therefore be claimed that Hajar bin Humeid has the status of being the first South Arabian site with a long and almost continuous time-span to have been excavated to date.

2. HUREIDHA (Hadhramaut)[64]

The Location: (Figure 4)

This is the other excavated site in South-western Arabia,

located on the northern scree slopes of the Wadi Amd, some miles north west of the town of Hureidha. Wadi Amd is the major tributary of the main Wadi Hadhramaut, the latter being no less than 120 km long. Wadi Amd is bounded by cliffs about 300 m in height, and consisting of socene limestone over cretaceous sandstone, with a discontinuous capping of later tertiary sediments. The Wadi Amd itself is filled, from cliff to cliff by a deposit of sandy silt, forming a level desert plain, and it is on its flanks that the rubble ruins of the irrigation systems of the pre-Islamic cultivators have been found, while, lying up-stream, are the remains of a dam with a V-shaped foundation. To the north east of Qarif ibn Thabit is a canal, and nearby are several small fields and plots, while in the main wadi, near Qarif ibn Thabit, at the western foot of an island of higher ground, are the mounds of the Moon Temple (A3) and a farmstead (A4). On the edge of the Wari Amd, opposite Hureidha town, are the remains of tombs A5 and A6, and domestic buildings. All the mounds of the temple, farmstead and tombs indicate that the ancient Hureidha site was fairly extensive.

The History and the Excavations of the Site

This site was probably first visited by Freya Stark. It was in 1936 that she decided to return to Hadhramaut (Hureidha) in order to extend her journey, and in 1937 she returned there accompanied by Dr. G. Caton Thompson and Elinor Gardener, an expedition including these two latter arriving in December. By a strange stroke of luck, they chose an irregular sandy knoll and at the same time chose two other areas (the farmstead and the tombs) and started their excavations. This was in fact the first controlled archaeological excavation to be carried out in south-western Arabia.

The Moon Temple:[65]

Before this first archaeological survey was carried out in this pre-Islamic irrigation area, the existence of the buried building was suspected from the unnatural appearance of the banking of drift-sand, which suggested an accumulation of considerable age. The sandy knoll rising irregularly some 4 m above the compact aeolian silt floor of the Wadi Amd, lies in mid-plain, and virtually forms an island in the 795 m contour, about 350 m long by 200 m or rather less, wide.

Three trenches were cut into the crest of the mound, the first being test-trenches and the third being the main excavation trench of the Moon Temple.

A1 was cut into the lower western slope

A2 was cut higher up this slope

A3 as it was subsequently called, was cut into the south-west side of the crest, overlooking the Qarif ibn Thabit depression.

The excavation of this site uncovered the remains of a temple now known as the Moon Temple, the first of its kind to be laid bare in Arabia. Three building periods, or phases, of the Moon Temple were found here (A3):

Phase A:

This is the easiest building phase and occupies a stone platform.. Many archaic inscriptions have been found here, and are assumed to have originally belonged to the first temple; they show that the temple was dedicated to the very ancient Semitic Moon-God 'Sin', and that the original name of the town was 'Madabum' (this name, however, does not appear until Phase C). The building is orientated toward the south-west:in this respect unlike any other

recorded temple in South-western Arabia, but probably following the pattern of Babylonian temples; the raised platform style of building is probably also derived from the same area.

Phase B:

To this, or to the next phase, may be assigned the fine top check stones on the old platform; but external deposits are believed to obscure this phase.

Phase C:

This is the latest temple phase, where certain additions or changes have been made to the building.

The Tombs: [66]

A number of tombs are located in the northern cliffs on the lower scree slope. They are in the form of artificial caves, serving as sepulchral chambers for the dead, and having been carved out of the resistant sandstone breccia. The two excavated tombs are here designated Tombs A5 and A6. Many different objects have been found here, besides potsherds and beads. Other interesting objects found in Tomb A6 were a pair of seals, one of agate with a silver mount and the other, a double-sided seal, of black kaolinite.

The Farmstead (A4)

130 m north of the Moon Temple a low-built mud-brick farmstead was excavated which turned out to be a building with four regular sized rooms and passages. Some sherds similar to those of the tomb were found here, together with others inscribed in an early Arabian script. These finds served to confirm the view that the building was contemporary with the tombs.

Chronology [67]

The evidences from the incompletely excavated site of Hureidha

are of limited scope and therefore less reliable for the chronology of the already unreliable Arabian pottery than we would wish. Epigraphically, the inscriptions make no discoverable contact with events recorded elsewhere. The building style of the Moon Temple, as suggested by G.C. Thompson, has been influenced, in a broad sense, by foreign models; it seems to have been taken from Arabia's northern neighbours, Persia, Phoenicia and Greece, and G.C. Thompson would therefore suggest a post-sixth century BC date for this style. [68]

Two stamp seals found in Tomb 6 have been dated by Dr. Frankfort. He has shown that they were cut in a region directly or indirectly influenced by Achaemenian glyptics, and his evidence makes it highly probably that the tomb itself dates to Achaemenian times; i.e. between the sixth and fourth centuries BC. [69] The beads from tombs A5 and A6 have been dated by Van Beek, by comparison with Syrian beads, to the seventh to fifth centuries BC. [70] The pottery from Hureidha is, beyond question, of an isolated type, no truly parallel pottery having been found by G.C. Thompson in Palestine, from the post-Exilic period, in Trans Jordan from the Nabataean period, in Egypt from the Ptolemaic dynasty, or in contemporary Mesopotamia. Some stone incense-burners were found in an external shrine of Phase C of the Moon Temple. This type of incense burner has also been found in a cave tomb at Gezer, Palestine, very similar in shape, and with a similar linear criss-cross pattern, similarly expressed with a diagonal cross. All the incense-burners of this type found at Gezer are attributed to the Hellenistic period, and for this reason, G.C. Thompson [71] assumes that the relative dating for this building is Phase C or post Phase C, which alone yielded objects of this type. This would give a date later than 300 BC. In

this connection she holds that it may be significant that Tombs A5 and A6 are broadly correlated, through their pottery, with Phases A and B of the Temple, which, however, itself produced no incense burners of this type. On the basis of the pottery therefore, G.C. Thompson takes the reasonable view that Farmstead A4 is more or less contemporary with the tombs, but that its relationship to the Temple is much less clear.

The Reliability of the Hureidha Pottery

The pottery from Hureidha is not completely reliable as archaeological evidence for dating purposes at the present time, as it is comparatively uninvestigated and individual examples undated. The Temple and tombs A5 and A6 are dated on grounds not yet strong enough to be used as evidence for the chronology of Arabian pottery from other sites. The pottery from Phases A and B, and from Tombs A5 and A6 is dated to the middle of the fifth to the fourth century BC, but could be somewhat earlier or later. Again, even the Temple pottery could be of a date different from that of the Tomb pottery since some of the Temple pottery is rather finer in texture than that of the Tombs. However, since the Hureidha pottery was yielded by the excavated building phases of the occupation levels, it clearly cannot be rejected outright; it may yet prove to be of use somehow for the comparative study of Arabian pottery, or perhaps in one way or another even for dating purposes.

THE POTTERY FROM HUREIDHA [72]

The pottery of Hureidha has been classified and published by G. Caton Thompson, and, accordingly, it is here discussed in a somewhat brief, but nevertheless comprehensive form for the purpose

of a comparative study of the undated Arabian pottery. Most of the pottery of this site was yielded by the Tomb excavation and most of it is in complete shape, whereas the pottery from the Temple and the farmstead is mostly fragmentary. The whole of the pottery from Hureidha is here treated as one unit, firstly because the amount from each area of the site is very small and, secondly, because almost all the pottery appears to be homogeneous.

Form Types

Essentially, all the pottery has been classified on the basis of the Arabian standard types, which are (as has been mentioned) Special charts have been prepared for the Form-types of Hureidha pottery, which show the distribution of the form types by excavated areas. They are also shown on the major charts of the Form types of Arabian Pottery, specifically for comparisons with the pottery of the other Arabian sites. See Tables 17, 18 and 19.

Bowls

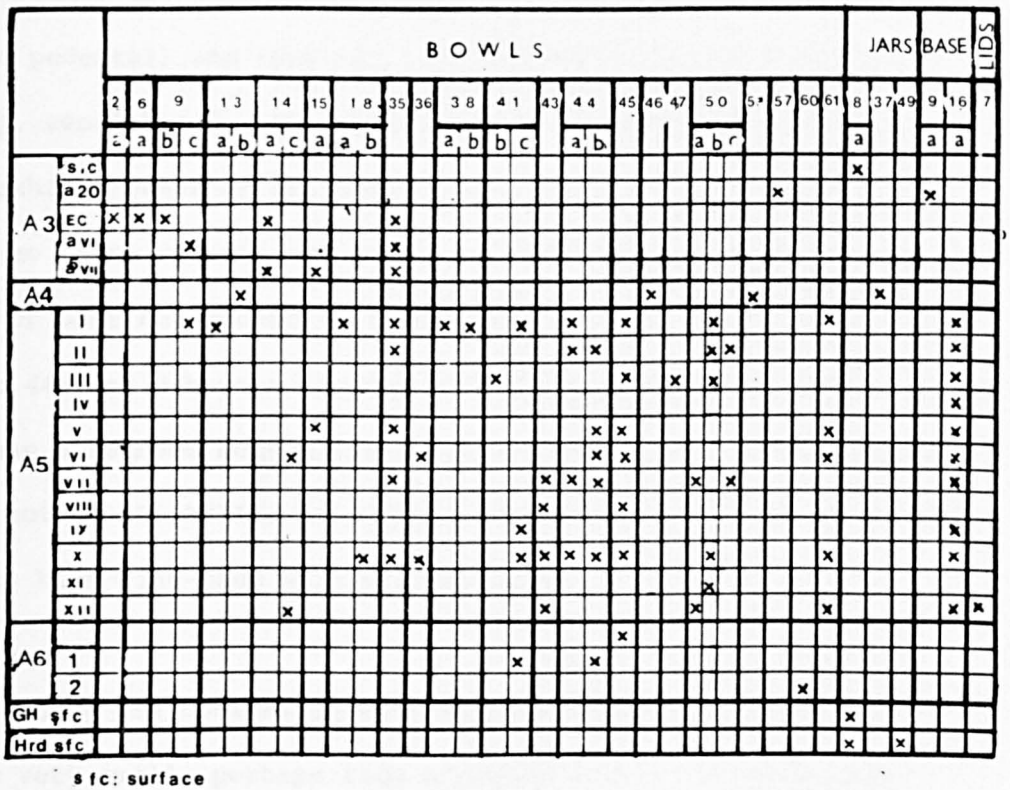
Thirty major types have been classified at this site; see Table 8 for the distribution of the Bowl-types at Hureidha; 16 of these are similar to the Standard Bowl types of the Arabian pottery, while all the remaining 14 Bowl types are new types and are given the new numbers; (35, Pl.XXIII), 41b, c (Pl.XXVI), 43, 44a, b (Pl. XXVII), 45, 46, 47 (Pl.XXVIII), 50 b, c, 51 (Pl.XXX), 60 and 61, (Pl.XXXIII).

For a description of these new types see Bowl Form-list and catalogue.

Jars

Surprisingly enough only a few rim-sherds of jars were found at this site, and most of them came from tomb A5. Only three types

FORM TYPOLOGY OF HUREIDHA



sfc: surface
a : area
E C: East Corner Phase A
avi & avii : Phase C
GH : Gheibun
Hrd: Hureidha

Table (8) Occurance of Bowl, Jar, Base, and Lid Types by areas

of jars have been found, two of them similar to the Standard Types (see Table 8 for the distributio of the Jar types). Only one type is a new one (49); Pl.LVI no 122 illustrates this jar, which is extremely thick and heavy and was found during the Harding survey at Hureidha. For descriptions see Form list and catalogue.

Bases

Only two base-sherds were published by G.C.T. of types 9 (high pedestal) and type 16, (medium high ring-base with flaring foot), see Table 8. But some of the vessels are still fairly complete but exhibit bases of different types (such as the types 1, 15 and 18), so these vessels are not here classified according to the type of base but according to the type of Form. For example Bowl types 44a and b have a dimpled bottom (Pl.XXVII, no. 212), Bowl type 41c has a rounded bottom (Pl.XXVI, no. 209), Bowl type 35 has a flat bottom (Pl.XXIII, no. 199); and Bowl type 47, 60 and 61 have a very high ring-base with flaring foot.

Lids

Only one conical pierced lid was found (T/7, Pl.LXXI, no. 7) it is very small, perhaps from a narrow-necked jar or perhaps from a chalice, as the chalice found at Hureidha is lid-ledged and also has an extremely high ring-base (Bowl type 47, Pl.XXVIII no. 216), but no lid-ledged jars or bowls have been found so far. A more detailed analysis and discussion of the form typology of Hureidha pottery appears later in this chapter under general remarks of Hureidha pottery.

Fabric

The clay of the pre-Islamic pottery of Hureidha ranges from fine to medium-fine to coarse. The paste has been fired pinkish

buff, red to dull red, reddish-brown and dull black to dark grey in colour most of the pottery has a grey or black core and has mostly been fired soft (friable). The Form-types of Hureidha pottery - which have been mentioned previously - comprise six major types with some sub-types. Some examples have been handled and closely examined, while some have also been petrographically analysed by the present writer. All the results of these studies confirm that there are indeed some similarities and some differences between the Fabric types of Zubaidah and those of Hureidha. However, it is important in this present study to be clear that a similar or fairly similar fabric-type is here given the same standard fabric-type number, even though there may be some minor differences, while a completely different fabric type from Hureidha is given a new Fabric type number. A chart of the Fabric types of Hureidha pottery has been prepared, which shows the distribution of fabric types by excavated areas (Table 9) and these fabric types are also shown in the main Table of the Fabric types of Arabian pottery, to facilitate comparisons between the fabric types of various Arabian sites. Here, however, for convenience, are the fabric types of this site.

Type AII (Uncertain Type)

The clay of this type is tempered with chaff and grits, and it is probably not well levigated. The paste was fired pinkish-buff, friable and with a grey core.

Four Bowl-types occur in this fabric type (Bowl types 8a, b, 60 and 61), but all the pottery of this ware (AII) is rough-finished, without a slip or wash and is probably wet smoothed. There are zig-zag (angular) or wavy bands, lightly scored freehand below the

rim with a blunt tool in the green-hard stage. In two cases, the band is doubled or trebled; in another case, Type 60 (Pl XXXIII, no. 231) the lower part of the bowl, near the stem and down to the stem, is incised with close-set wavy lines which become zig zags on the stem. All the vessels are hand-made, but the rim and foot may well have been turned in some primitive fashion on a support of some kind.

Type B

This ware can be divided into four sub-types on the basis of the type of tempering material, thus;

B1: This ware is tempered with chaff; it occurs in Bowl types 9c, 41b and 46. These sherds were fired reddish buff or dark brown and reddish grey, with dark patches of firing on both surfaces; all the examples have a grey core and all are hand made. The knob and the animal head lug-handle having been applied (by coiling). In one example, the surface-finish is without slip or wash (Type 46); in another (9c) the surface is burnished on both sides; a third example, Bowl 41b, has traces of a former red coating. Yet another (Bowl 46) shows irregular horizontal wavy incised lines, and is decorated with a neatly applied animal-head to serve as a handle; another has a square shaped knob below the rim.

Type BII: This type is medium-fine ware, usually with chaff and pieces of grit. The colour of the clay is pinkish-buff, with or without firing mottling; fractures reveal a badly fired grey core.

B11 occurs in Bowl type 35, the only example of fabric type B11. All the vessels are hand-made and horizontal striations here again suggest some form of slow turn-table. Four examples bear

traces of a brick-red coating on the interior, with more doubtful traces on the exterior. Only one sherd has the common incised line below the rim, but it also has the letter , cut during the green-hard stage.

Type BIII: This ware is similar to BII but with large pieces of grit. Bowl type 36 was fired reddish-brown, but in other similar types of vessel the ware is pale pinkish buff, mottled with grey or red fired patches. The core is grey. All the Bowls of Type 44a and b are in a pinkish buff to purple-red or grey-brown ware, with darker fired patches.

BIII occurs in the following Form types:

Bowls: 13b, 14c, 15a, 36, 43, 44a and 44b

Jars: 8b and 37

All the vessels are hand-made and the wide ledge-rim seems to have been made by folding back the slack and so was not applied separately. All the vessels of Bowl-types 14a, 15a, 44 and Jars-type 8a and 37 have been finished without a coating, except for the bowls of Type 13b was coated with a reddish buff slip. Bowl 36 has no decoration, but some examples of other types have a single band of stabbed drop-shaped incisions below the rim, one example being reinforced by a light zig zag. The ledge-rim Bowl, type 14c and Jar types 8b and 37, bear inscriptions. Nearly all the bowls of Types 44a and b have a single straight horizontal line incised below the rim on the outer surface, but one example is decorated with a "rail-road track" design, deeply incised below the rim.

Type BIV: Only one example of this ware has been found as yet, of medium-fine clay with mica grains.

BIV occurs in fact only in one bowl of Type 47. This example is a chalice, biconical and with a rounded lipped rim; and it should be noted that a pronounced edge inside the rim indicates former presence of a lid. The surfaces of all such examples are reddish-brown, rough and with no surviving coating. This example is decorated with a double belt of shallow dots enclosing the waist. The pedestal has a vague fluting; and a dotted belt and horizontal scoring define the rim. All examples are hand-made, apparently in one piece.

Type DI: Sandy marl ware, containing chaff; insufficiently fired, with a black core and red on both surfaces. A sample of this type petrographically analysed (Pl. CXXVI no. a) sample H4 shows non-birefringent matrix in red colour, contains silt size quartz, much iron ore and iron oxide from 0.5 to 0.6, some particles of biotite and hornblendes.

DII wares only occur in two Bowl types, 38a and Type 50b, the latter being clearly the more popular. They are deep, upright bowls, with slightly concave vertical sides and rims, all of them having a medium-high ring-base with a flaring foot. Most of them are coated with a brick-red slip on both sides, smoothed but not polished. Five examples show a vaguely incised line defining the rim, while two others also bear a wavy line below this. All the examples are hand-made, with possible rotation on rim and foot.

Type F1: This ware is a fine cream ware, all the examples being sherds. Applied cream slip, coated with a light blue glaze; well fired; hard. Another example is decorated with two parallel, horizontal incised lines.

Type HII: Coarse, the clay being tempered with crushed flint and chaff. Fairly well fired, but with a grey core; fired brown to brownish-buff on the inside and red on the outside.

HII occurs only in the jar Types 8b and 49. One example is without coating or slip, the other has traces of a red slip (Type 49); the third has traces of a burnish on a red surface on the inside. All the jars have incised letters, or marks, on the top of the rim. One example has a 'rail-road track' motif on the top of the rim, and the other has a vertical incised dashes below the rim.

Type I: Stone Ware

This ware is referred to as 'stone ware' by G. Caton Thompson purely on the basis of its shape and not because it is really stone; it is actually an artificial substance.[73] The vessels are black or grey in colour and were made from a clayey material, formed by the severe weathering of igneous and metamorphic rocks. They contain variously sized angular pieces and fragments of a tremolite chlorite talk-schist with small quartz grains, set irregularly in a dense ? ; all the bowls show particles of micaceous? A sample of this type, petrographically analysed, the matrix is non-birefringent of blackish-brown colour, contains quartz and subangular sub-founded sides, chiefly of silt size, much iron ore, ranging from 0.05 to 0.2 mm with some iron ixide. See Pl.CXXXI, no. b, sample H1.

The ware was fired dark grey to dull black and occasionally mud-colour. All the vessels crumble readily and all were hand-made and insufficiently fired; some of them were wet-smoothed and others roughly finished. This type is restricted to a special type of

ear-lug bowl, i.e. Type 41c (see Pl.XXVI, no. 209), and to small spouted or handled vessels (Bowl type 45), all probably designed to contain fatty substances. (See Pl.XXVIII, no. 214). All the vessels have uncoated surfaces, but were smoothed with a wet hand. Most of these vessels have incised letters on the ear handle. One example 41C has a letter on each ear-lug (See Pl.XXVI, no. 209) two of them are unidentifiable. Some bowls of Type 45 also have incised inscriptions made during the green-hard stage, and one example (Pl.XXVIII, no. 214, Type 45) shows a carelessly executed 𐤉𐤌𐤍, produced by a blunt tool.

Surface Finish

Not all the vessels of Hureidha have a slip; there are some that are uncoated, rough finished, i.e. without slip or wash, but not polished. The slip is restricted to Bowl-type 38a of Fabric type D1 and to Bowl-type 36, Fabric-type B11; Jar-type 49, Fabric-type H11 and Bowl-type 41b, Fabric-type B1, also have traces of a red slip. A brick-red slip also occurs on Type 44b and on Bowl-types 18c, 44a and b.

The other variety of slip is orange-brown in colour or has faded to a grey or reddish-buff colour. In most of the sherds the slip was applied to both surfaces. It seems likely that the vessels were dipped into the slip when partially dry and then fired. Table illustrates the distribution of the slip in all areas of the Hureidha site. Incidentally, it seems that burnishing was not very common at Hureidha, as very few sherds show any signs of it. One example, Bowl-type 43, A5 Fabric-type B11, has traces of a pebble-burnish; the other example, Bowl-type 9c, A3, Fabric-type B11,

has a red burnish which was applied to both sides.

Decoration

Only two types of decoration were employed at Hureidha.

1. Incision:

This occurs in different styles, including incised inscriptions, but undoubtedly the most common incised decoration was the zig-zag or wavy band, lightly scored freehand below the rim with a blunt tool in the green-hard stage. Such bands occur singly, doubly or trebly; or, more rarely, a straight horizontal line occurs below the rim. Another style is a single band of stabbed drop-shaped incisions below the rim, or vertical incised dashes or shallow dots encircling the waist. Yet another popular form of incised decoration was an inscription or symbols on the top of the rim, below the rim, on the spout of on the handle. These were executed in light pointillé. See Table 9 of this site and Table 21 of the Arabia for comparison.

11. Applied Decoration

Another type of decoration was a ridge applied to the rim or just below it; this may occur in the shape of an animal-head, a square or a single or double horizontal band. For the decorations see Table no. 9.

Method of Manufacture

All the vessels of Hureidha are hand-made. The wide ledge-rim seems to have been made by folding back and squeezing out of the "slack" of the edge, and so was not applied separately. The handles and spouts, on the other hand, were all made and applied separately. The small vessels all seem to have been made in one piece, as far

		FABRIC TYPOLOGY										SURFACE FINISH				DECORATION							
		A	B			C	D	F	H	I		Slip	Plain	Burnish	Glaze	Applied Ornaments	Incision						
		II	I	II	III	II	I	I	II								Straight Horizontal Line	Wavy Line	Straight Railroad Track	Stabbed Drops	Impressed Dots	Inscription	
A 3	sfc			×									×			×							×
	a20			×									×			×							
	EC				×	×						×	×			×	×						
	avi			×		×						×		×		×	×						
	avii			×		×						×	×			×	×						
A 4			×	×	×							×	×			×		×	×				×
A 5	I	×	×	×			×			×		×	×	×		×	×	×			×		×
	II			×			×			×		×	×				×	×					
	III		×	×			×			×		×	×	×			×	×					×
	IV	×											×					×					×
	V	×		×			×			×		×	×				×	×		×	×		×
	VI			×						×			×	×						×			×
	VII			×			×					×	×										
	VIII									×			×										×
	IX						×						×				×	×					×
	X	×		×			×			×		×	×				×	×		×	×		×
	XI		×									×	×				×						
	XII	×		×			×					×	×					×		×			×
A 6	sfc									×			×										
	1			×						×			×				×						
	2	×											×					×					
Gh	sfc			×									×										×
Hrd	sfc							×	×	×		×	×		×						×		×

sfc = surface
a = area
EC = East Corner (Phase-A)
avi avii = Phase C
Gh = Gheibun
Hrd = Hureidh

Table (8) : Hureidha—Occurance of Fabric Types, Surface Finish and Decoration by areas

as we can judge. Another technique commonly employed was moulding or pressing; the clay was not rotated during this process. This method has already been sufficiently explained under the heading of the technique used for the production of pottery at Zubaidah.

General Remarks Concerning the Pottery from Hureidha

First of all, then, several noteworthy features in the pottery from Hureidha deserve our attention. This assemblage presents certain new forms, not found on other Arabian sites (except for a few in the other site of Southern Arabia). These unique forms include lipped bowl, Pl.XXVI, no. 208 spouted or handled bowls (Pl. XXVlll, No. 214); unusual too is the deep bowl with dimpled bottom (Pl. XXVll, nos 212-3) and so is the presence of ear-lugged bowls (Pl. XXVl no 208, Table 8) of the Bowl types shows that Bowls 2, 6, 9b and 57 occur only in A3 (The Moon Temple). Type 46 is found only in the A4 Farmstead and Type 47 only in area lll of A5 (Tomb). It will be noticed that the most common Bowl type is 35, found particularly in A3 and A5, and the Table also shows that in fact most of the Bowl-types occur in A5. Characteristic too of this assemblage is the presence of goblets on tall stems (Water-Coolers) (Pl.XXXlll, nos. 231-2), and very remarkable is the scarcity of jars, only a few having been published. (See Table 8 Jar types). There are no small, narrow-necked jars at all; there are indeed a few heavy jars, but even these are in the minority, by far the greatest number of vessels being, of course, various types of bowls. Again, the most common type of base on these vessels is the medium high or high ring-base with the flaring foot, e.g. Base 15 or 16; but e.g. base 9a is a rare type forming the pedistal of a heavy jar. (Table

8 Base-type 9a).

Another unusual characteristic of this assemblage is the presence of stone ware. (Discussed in the Fabric Types series of Hureidha). These vessels feel greasy, and G.C. Thompson [74] suggests that this may indicate their function, i.e. the storage of fat. Table 9 of the Fabric Types shows that this type occurs in Tombs A5 and A6. The most common type to occur in all areas is ware BII, while fine wares occur only in A3 (Temple). Sandy D1 wares are uncommon and occur only in Tomb A5, and ware HII (crushed flint) are also rare and found only in the surface collection. Yet another feature of this pottery is that certain forms of vessel are closely associated wit- certain types of fabric; for example, the pinkish-buff porous coarse pottery of (Type AII?)was mainly used for water-coolers (Bowl-type 37 and Types 18a and 18b); the stone ware in black or grey was reserved for ear-lug bowls, small spouted unguent vessels and miniature vases.

As far as surface finish is concerned, it seems that a brick-red slip was commonly used for small drinking cups and bowls. Table 10 shows that the slip was a common feature of the pottery of this site; it occurs in all areas, except for A6 about which there is no certainty. Uncoated (Plain) wares also occur in all areas. Burnishing seems to have been rare as only a very few burnished vessels have, so far, been found. Type F1 glazed pottery is also scarce at this site.

During personal examination of the Hureidha pottery at Cambridge University, a blue glazed sherd was noticed, which had been found at Hureidha, but it is not yet clear whether this sherd is Islamic or pre-Islamic; the paste is fine and creamy-yellow in colour (Type F1). In general, the pottery recovered from Hureidha is rough,

insufficiently fired and hand-made. Technically, it is not highly developed. On the whole, the temple-ware tends to show a finer texture than that of the tombs, but the most developed technique is seen in the incised inscriptions and the various incised designs.

III. The Surveyed Sites of South-western Arabia

It has already been remarked that in this part of the Arabian Peninsula, a stable civilisation was developed within the various powerful kingdoms at different periods, or at the same period, by the method of gaining control of the ancient trades and especially the ancient trade routes, a method which brought great prosperity and comfortable wealth to this whole region. Several trading stations and markets must have grown up and become large communities or towns. However, in comparison with those many trading undertakings, only a few substantial remains of their sites exist at the present day and most of these are in a sorry state of dilapidation. A main cause of this may have been a too rapid increase in the population of the area, for most of the sites have been dug up by newcomers to obtain the ready-dressed stones for building purposes, or have been dug up by robbers. Another main cause may of course, be natural erosion; but these two causes are not unconnected.

However, this may be the surface collected pottery discussed below came from the following still unexcavated sites:[75]

1. Karish inthe Makairas area of the Western Protectorate.
2. Am Qurnain.
3. Am Jabalain and
4. Al Quraiyat.

These four sites lie in the Abyan district, one of the most fertile in the Western Protectorate, for two large wadis, Banna and

Hasan, almost meet in the delta.

5. Subr: this site lies a few miles north of Aden.

6. Shuqa (cemetry and settlement). This site lies in the Dhala area, the most beautiful and attractive part of the Western Protectorate, with wide wadis and much cultivation.

7. Adiat al Sultan and

8. Raibun

These two latter sites lie in the middle of Wadi Du'an in the Eastern Protectorate, both being heavily eroded by wind and rain.

9. Al Banna and

10. Hajar Burairah.

These two sites lie in the Wadi Jirdan area of the Eastern Protectorate.

11. Site 24, near Hainan

12. Mashgha

13. Makainan

14. Husn al Urr

These sites lie in the main Wadi Hadhramaut, or one of its tributaries; for instance, Mashgha is an extensive site situated in the Wadi Adm.

15. Naqb al Hajar. This large site, which is completely enclosed by a fine city wall, lies in the Wadi Maifaah, in the Wahidi Sultanates.

16. Maryamih

17. Haid bin Aqil.

These two sites lie in the Wadi Baihan area.

The Reliability of the Pottery

The pottery which came from the Harding survey in south-

western Arabia has no real chronological significance, because all the material came from the surface collection, and not from excavated occupation levels. The attempted dating of the three sites, as supplied by Harding is mere guesswork, based solely on the surface collected material. Hence, this unscientifically dated pottery from these sites cannot be in any way reliable for dating the still undated material from the other Arabian sites. However, this material may be useful for a comparative survey of Arabian pottery, because within it there are some excellent examples of form and fabric types, as well as of burnished vessels.

The Pottery

All the pottery below discussed came from one or another of the above-mentioned sites, but most of it came from Subr and Mashgha and slightly less from Adiat al Sulta, Raibun and Al-Banna. However, all this pottery is here treated as one unit, because all of it came from the surface collection and not from the occupation levels; and because the amount of the pottery from some sites was very small and because all the pottery appears to be fairly homogeneous; and, finally, because this pottery has not been handled and examined personally and the descriptions of the pottery from each site, published by Harding are totally inadequate for a discussion of the pottery from any site separately. Hence, all the pottery is here discussed briefly and in general terms, simply with a view to facilitating the comparative study of Arabian pottery. All the Form-types, Fabric-types, surface finishes and Decoration-types of the above-mentioned sites are shown in the major table (17, 18, 19, 20 and 21) of Arabian Pottery, in front of the space allotted to each site. So one can easily gather the

the relevant information regarding any individual site and, at the same time, compare it with that regarding other sites of the Arabian Peninsula.

Form Typology

Bowls

Several types of bowl occur at these sites, and no fewer than 53 major and sub-types have been classified. All of them are similar to the Standard Bowl-types of Arabian pottery, except for three new types; Bowl 48 from Adiat al Sultan (Pl.XXIX, no. 217) Bowl 49 from Shuqa (Pl.XXIX no. 218) and Bowl 50a from Mashgha (Pl.XXIX no. 219). For descriptions of these new types see Form-types list and catalogue). Table 17 shows the distribution of the Bowl-types at the South-western Arabian sites and the same Table 17 also shows the disappearance of certain types, such as the carinated side bowls of Type 3a, c, d, e, f, g,; Type 4a, b, c, d, e, f,; Type 10 and so on. The most common bowls are 6c, 9a, b, c,; 13 a, b 14a; 18 a, b, and 35.

Jars

39 major and sub-types have been classified at these sites. Table 18. Although the Jar-types are fewer than the Bowl-types, there are actually more new Jar-types than new Bowl-types. Ten Jar-types are not new. Thus Jars 27b and c (Pl.XLIX) 44 (Pl.LIV), 46a (Pl.LV) 47 (Pl: LV) and 48 (Pl.LVI) are from the Subr site. Jars 51 and 52 (Pl.LVII, nos. 125-6) from Mashgha and Jar T54 (Pl.LVIII, no. 128) from Haid bin Aqil. For descriptions of these new Jars see Form-type list and catalogue and for the distribution of the Jar-types in each site, see Table 18.

Bases:

Table 19 shows 15 types of base at the south-western Arabian sites. Four of them are new; Base 13, (Pl.LXIV, no. 65) is from Naqb al Hajar; Base 18 from Adiat al Sultan (Pl.LXV, no. 70), Base 19 (Pl.LXVI, no. 71) from Raibun, and Base 20 (Pl.LXVI, no. 72) from Al Bann (See list of Form-types and catalogue).

Handles:

Five types of handle are shown in the Table 19: four of them are new (Pl.LXIX, nos 5-7); handle 5 is from Raibun, handles 6 and 7 from Naqb al Hajar and handle 8 from Subr (Pl.LV, no. 120).

Incense Burners:

Three types of Incense Burner are found; two of them are new and of unique shape. Type 3 came from Mashgha (Pl.LXXIII, no. 4) and type 4 from Subr (Pl.LXXIII, no. 5) (Table 19).

Lids:

It seems that lid-edged vessels are rare at Harding's sites only two having been published of Types 2 and 7 (Table 19). A more detailed analysis and discussion of the form typology of the above, Harding's survey sites appear later in this chapter under the general conclusion of the south west Arabian pottery.

Fabric

A number of different types of fabric were used at the Harding sites, and the consistency of the clay itself ranged from fine through medium fine to coarse and sometimes very coarse indeed. The paste of the pottery was, in general, well fired, but there are nevertheless several examples from each site which were insufficiently fired, the result being a grey or black core or dark firing patches on the

surfaces. The vessels were fired in various colours ranging from buff through red to reddish-brown, brown, grey and occasionally black; but a black colour may be due to uneven firing. It is clear too that a number of different tempering materials were used at these sites, and on this basis and according to our usual practice, the pottery has been classified in the following Fabric types:

Fabric Types (Table 20)

Type B: This major type falls into three sub-types;

B1:

The clay is fairly well levigated and tempered with chaff only; this type is not very common being found only at Subr and Mashgha (Table 20).

B11:

The clay of this ware is not as well levigated as that of B1 because of the presence of grits, but the latter are of small size and mixed with chaff; this ware occurs only at Al Quaraiyat and Husn al Urr.

BV:

The clay here is basically the same as that of types B1 and B11 but it is tempered only with large grits; the type occurs only at two sites, Am Jabalain and Subr.

Type C: This ware is of a fine clay, but with some small grits. The majority of the pottery of Am Jabalain, Subr and Al Quraiyat is of this sub-type (CII) but it also occurs at Shuqa and Al Banna, but in lesser quantities. Most of the pottery of this sub-type is wheel-made and well fired, particularly at Am Jabalain.

Type D1: This is sandy pottery and comprises chaff and different

types of grits such as crushed flints, micaceous and other grits along with chaff, particularly at Subr. Dl in fact, is the most common sub-type, and occurs at Subr, Shuqa, Adiat al Sultan, Raibun, Al Banna, Mashgha and Husnal Urr. The clay is fine and fairly well levigated and well fired, particularly at Subr, but at Adiat al Sultan the quality of the clay is poor, with a high mixture of chaff.

Type H: Basically, this ware is a coarse pottery and is divided on the basis of the types of temper into three sub-types as follows:

HII:

The clay of this sub-type is tempered with a high admixture of chaff and crushed flints; this sub-type occurs only at Adiat al Sultan, Rainbun and Mashgha. Again, the quality of the clay is poor. The sherds were fired uneven, and a thick black core commonly occurs. Only a few examples in fact show the same colour all through or all over. The firing colour ranges from red to buff.

HIII:

This sub-type is only found at Al Banna and Hajar Burairah, is mostly rough, coarse and tempered with chaff, crushed flints and steatite (soapstone); the average standard of firing is perhaps slightly higher than that of ware HII, but even so, most vessels have a grey or black core. All of this pottery is entirely hand-made, but occasionally there are indications of finishing on a slow wheel.

HIV:

This sub-type occurs at Adiat al Sultan and Raibun only. All the descriptions are the same as for ware Hll except that HIV is tempered with crushed pottery (grog) in addition to crushed flints and chaff.

Type I (Stoneware)

A few examples of Hureidha stoneware have been found at Adiat al Sultan and Raibun. Only one example was a complete section from rim to base, and indeed very similar to Bowl 41c (Pl.XXVl, no. 29).

Tempers

From all the above, it is evident that a variety of different types of material are used as a temper at these sites. Thus, the most common temper, just as was the case at Zubaidah, HBH and Hureidha, was chaff. This temper occurs in most of the Fabric-types and sometimes was used very generously at some sites, such as Adiat al Sultan and Raibun. The other common temper here was sand and, as we have seen, sandy wares have been found at most of these sites. Other less frequently used tempering materials, were crushed flints, crushed pottery and crushed steatite but it is to be remembered that pottery tempered with these latter materials was not found at all sites but was perhaps restricted to Adiat al Sultan, Raibun, Al Banna, Hajar, Burairah and Mashgha. All the pottery so tempered is in general rough, coarse, and fired uneven. Type 1 (stoneware) is very rare, occurring only at Raibun and probably at Adiat al Sultan. See Table 20 for the distribution of Fabric-types and compare this type with those from the other sites of Arabia in the same Table.

Method of Manufacture

All this pottery is hand-made but some fine rims on some vessels have clearly been turned on a wheel, particularly at Subr. There are some indications of the outer surface being wet-smoothed on a slow wheel, particularly at Adiat al Sultan and Raibun, and of

the inner surface being probably smoothed with a bunch of grass. The large jars (Zirs) are coil-made, while the pottery of Am Jabalain is mostly wheel-made except for a few vessels which are hand-made.

Surface Finish (Table 21)

Three types of surface finish occur at these sites, namely uncoated, slip and burnish.

Uncoated: Uncoated surfaces occur only in a minority of vessels. Most of such vessels are uncoated only on the inside, but a very few are uncoated on both sides, the outer surface being merely wet-smoothed.

Slip: The slipped sherds from all the sites have the slip either on one surface only or on both surfaces, usually a fairly thick one, particularly at Adiat al Sultan, Raibun and Mashgha. The slip was commonly fired red, but the colour ranges from buff, pink to pinkish red, dark red to brown, cream and sometimes black. In most cases the black surface is in blotchy patches owing to poor firing. All the sherds of Shuqa by the way, have a slip, usually of the same colour of the body.

Burnish: It seems that the art of burnishing was common at all these sites, for it certainly occurs at nearly all. Some of the vessels are highly burnished with thick heavy lines, but several different styles of burnishing occur here. Pebble burnishing was very popular, horizontal, vertical and even spiral, particularly at Subr. Sometimes burnishing was practiced in horizontal lines only, all over and sometimes in a lattice-pattern all over, particularly at Shuqa. At Raibun, one example has a doodle-burnish on the outer surface, while another example at the same site has a circular burnish

on the inside near the keel and a doodle-burnish in the centre. Burnishing was applied to one or both sides, open bowls being regularly burnished on both sides, particularly at Subr.

Decoration

Three types of decoration were used at these sites, Incision, Painting and Applied Ornaments in different styles.

Incision:

Incised decoration appears in all sites in different designs and motifs (Table 21). The most popular designs were straight or wavy, single or double lines; combed designs, straight or wavy, horizontal or vertical, continuous or broken were also popular, particularly at Subr. Apparently, the herring-bone design was not at all common; it occurs only at Raibun, Al Banna and Mashgha. The 'broken saw-tooth' is also rare and occurs only at Am Jabalain. To add to the variety, the other incised designs found at these sites are punctuations, dashes, drop-shapes, thumb-nail impressions and 'piecrust bands'.

Painting:

Painting was perhaps not popular, only a few examples of painted designs being found. Only two examples of wavy painted lines are found at Subr. Two others are found at Raibun and here the surface has been divided up into bands, wavy lines or a lattice pattern having been painted in red on a cream band. A few painted sherds are also found at Shuqa, but these are beyond suspicion.

Applied Ornaments:

These again exhibit several different types, such as raised bands, rope impressions on raised bands, raised monograms etc.

Incised Inscriptions and Monograms:

These are too rare, only one example at Raibun and one at Adiat al Sultan having been found, both of them incised below the rim on the outer surface. Two examples were found at Hajar Burairah, but perhaps the inscriptions are incised on the inner surface.

Chronology

None of the above mentioned sites has been excavated and, therefore none has been scientifically dated yet. Little more than guesswork - this is the right word - has been applied to the chronology of three of the sites, namely Subr, Shuqa and Husan al Urr, on the very insecure basis of the surface collected pottery and the inscriptions.

Subr

Harding says that the forms of the pottery of Subr are not unlike those of Bronze Age Jordanian pottery, whilst the burnishing is reminiscent of the Iron Age pottery of the same country. He suggests a date of about the fifth or sixth century BC, but this conjecture is based solely on the type and feel of the ware. Professor W.F. Albright however, had also suggested much the same date on the basis of Palestinian analogies.[76]

Shuqa

Harding maintains that there is as yet no evidence on which to date the early sherds of this site. Two inscribed blocks in raised relief were, however, found built into the north-east and south-east corners of Masjid (Mosque) about a mile to the south of the site; the inscription on the block in the north-east corner has been published by Ryckmann in* Le Museon. It reads

"Wadd ab? Uafa'm"

* Ryckmans. Le Museon , Vol. 62 , "Revue d etudes Orientales. (Louvain, 1949), P.68 .

These blocks were most probably (on archaeological grounds) brought from Shuqa , and so Harding states that, if this is true, it would suggest that at least some part of Shuqa is as late as the second century AD; but he adds that the impression given by the sherds and other objects would indicate a rather earlier date, in the last centuries BC. [77]

Husn al Urr

Some curved door jambs with motifs of typical Graeco-Roman workmanship, a fragment of an inscription in "archaique" style and a small block with a raised rectangular boss was found at this site. Harding surmises that the inscription and the bossed stone point to a fifth century BC date, and that the jambs would fall in the first century BC-AD. [78]

General Conclusions on the South West Arabian Pottery

South West Arabian Pottery, throughout the pre-Islamic period, was certainly principally, and perhaps entirely, hand-made, but at the same time, the exceptionally fine rims of some vessels were clearly turned on a wheel. Moreover, several shaping techniques were used here, but the most common was coiling. The pressing (moulding) technique was unquestionably used at HBH and Hureidha, but it remains uncertain whether it was also practiced at the other sites of this province or not. Table 17 shows that different types of bowl occur and what is more than particular types are found in particular sites; for example, the ear-lug bowl-type 41c (Pl.XXVI, no. 209) is a characteristic feature of the Hureidha pottery and the deep-dimpled bottomed bowls (type 44a and 45a, Pl.XXVII, nos. 212-3) and Pl.XXVIII, no. 214 are more common at

Hureidha than elsewhere, but perhaps also occurs at Adiat al Sultan, to judge merely from the presence of the broken dimpled bottomed bowl (Base type 18, Pl.LXV, no. 70). Another fairly widespread bowl-type in South Western Arabia, one which is found in more than two or three sites, is the goblet with a tall steam; Hureidha and, perhaps, Subr, Raibun, Hajar Burainah and Mashga, but again, no complete goblets have been found at other sites, other than ones with a similar tall stem, so we cannot yet tell how widespread other types were. (See bowl-types 61 and 62, Pl.XXXIII, nos. 231-2 and Base types 14 and 15, Pl.LXIV, no. 66 and Pl.LXV, no. 67, see also Table 19 of the Base types). Another very typical feature of the South Western Arabian pottery is the presence of the shallow wide bowl with a slightly rounded or flat base, Type 35 (Pl.XXIII, no. 199) which occurs in most of these sites. Vessels with a wavy rim (Type 13f, Pl.XIV, no. 119) are rare at present but have been found at HBH, Haidh bin Aquil and perhaps at Zinjibar, but deep bowls with vertical sides, type 14 and hole-mouth bowls, of types 18a, b are common throughout South West Arabia.

Yet another characteristic feature of this pottery is the presence of large jars at most of the sites; these are of two types, one type with a wide open mouth (Types 37, 38 and 51, Pl. LII, no. 109) (Pl.LIII, no. 110) (and Pl.LVII, no. 125) see Table 18 and the other with a narrow neck, such as Jar 27b, (Pl.XLIX, nos. 95-6) and Jars 34 and 35 (Pl.LII, nos 106-7). A rare example is an extremely thick and heavy jar with a wide, flattened, inscribed rim, Jar 49 (Pl.LVI, no. 122). Bottles and jugs are very rare, only one having been found at HBH, Jar 50b (Pl.LVII, no. 124) and one at

Haid bin Agil, Jar T54 (Pl.LVIII, no. 128). Lid-ledged vessels are common at HBH, Jar T35, but, for some reason, rare at other sites, see Table 19 for the lid-types distribution. Another peculiarity of some South West Arabian pottery is the presence of heavy jars with a long or short horizontal or vertical pierced ledge-handle, Jar-types 47, (Pl.LV, no. 120), 48, (Pl.LVI, no. 121), and Jar T52 (Pl.LVII, no. 126). See table 18 for the distribution.

The Form-types of South West Arabian pottery comprise several different types of fabric. The two most common types are the medium-fine BII and the sandy DI, followed by the coarse pottery with a special type of tempering material, e.g. HI, HII, HIII, and HIV, these being of crushed flints or steatite, together with chaff. The other coarse type is, of course, stone-ware Type I (See Table 20 for the distribution of the Fabric Types in South West Arabian sites). Type I occurs at Hureidha only in certain forms, such as Bowl 4c, an ear-lug bowl, and Bowl 45, a spout handled cup. It seems that chaff was the most favoured temper throughout the pre-Islamic pottery of South West Arabia; it occurs in most of the pottery at all sites, sometimes indeed, being used very generously at certain sites, such as Adiat al Sultan and Raibun etc. It has been remarked that crushed steatite was also commonly used at many sites along with chaff or other tempering materials. Most of this pottery was fired in a reducing atmosphere, resulting in a grey or black core; but at some sites the pottery was firex exception-ally badly, resulting in a black or grey ware throughout, as in pottery at Adiat al Sultan and Raibun.

With regard to the slip, most of this pottery has it, mainly

in red, either on both the inside and the outside, or on one side only, and sometimes it is fairly thick. The most characteristic feature of the surface treatment is here pebble-burnishing, which was clearly very popular at all the sites; it was practiced in different styles, chiefly horizontal and vertical, but sometimes also spiral, latticed or criss-cross. At times, the burnished lines are exceptionally thick and heavy, particularly at Subr; all the burnishing was probably done by hand. And finally, the most characteristic tupe of decoration of the South West Arabian pottery is incision in various styles, but the most popular style of incised decoration is straight or wavy single or double lines and straight or wavy combing, either horizontally or vertically. 'Pie-crust decoration' is more common at Subr, Al Quriyat, Shuqa and Am Jabalainthan elsewhere. The applied ridge or raised band decoration is also common but a painted type of decoration is rare. See Table 21 for the distribution of the styles of decoration in South West Arabia. In general, it can be confidently affirmed that the type of pottery used in the home and that found in the tombs are very much alike; but the domestic pottery in South West Arabia is not as a rule well-fired, and generally ranges from crude and rough to medium-fine, often merely burnished and treated with a wet-smooth finish, while the tombs pottery is as a rule of finer texture and finish.

CHAPTER III

CENTRAL ARABIA

Central Arabia is situated on the dividing line between two major geological provinces.[79] The Arabian Shield in the west, consisting of igneous and metamorphic basement rock, and the Arabian Shelf in the east, consisting mainly of limestone and sandstone. The most prominent feature of this whole area is the Jabal Tuwayq.[80] The climatic conditions here are such that the present day precipitation of rain lies between 25-100 mm isohyets, and most of it falls within the winter months. In general , the rainfall is scanty, irregular and unreliable; the runoff gathers quickly and then disappears, first into the alluvial strata and then into the sandstone and limestone formations of the Jabal Tuwayq, thereby adding to the aquifer pools.[81] For the most part, the landscape is dominated by all the features typical of an arid climate, that is to say exposed, rocky and abrupt escarpments, pinnacle rocks, flat-floored wadis, open plains, gravel plots, dune formations and pans. As one might expect, the vegetation is dominated by xerophytic plants, and the fauna represents a mix of impoverished Ethiopic and palae-artic types.[82] It was from three regions of this Central Province of Arabia that all the pottery discussed below came.

Kharj

This area is south of Riyadh (Figure 5) situated within the Tuwayq escarpment system; it is a plain dominated by the aquifer pools and is located at a strategic juncture or confluence where the

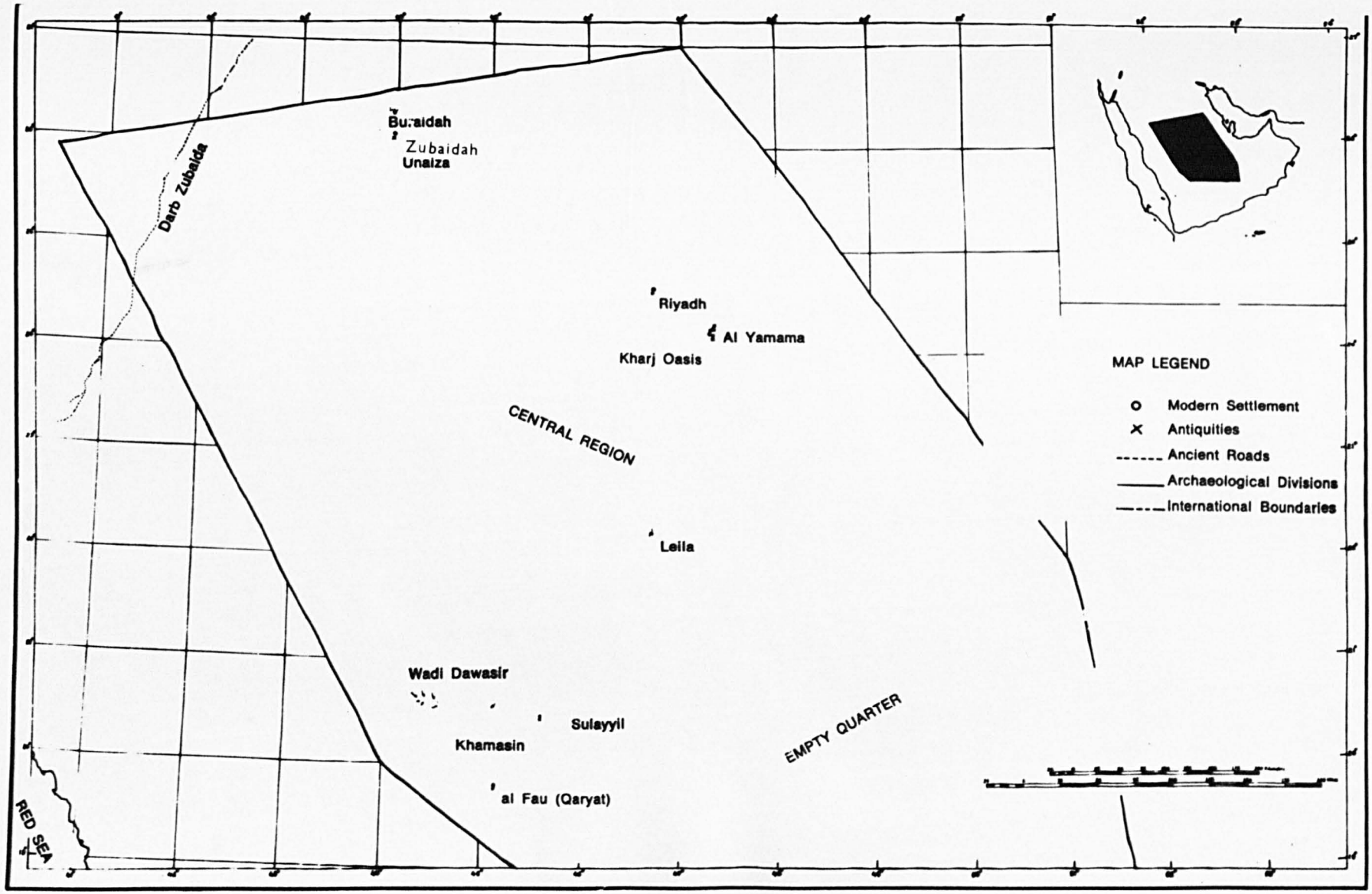

Buraidah
Zubaidah
Unaiza
Darb Zubaida
Riyadh
Al Yamama
Kharj Oasis
CENTRAL REGION
Leila
Wadi Dawasir
Sulayyil
Khamasin
al Fau (Qaryat)
EMPTY QUARTER
RED SEA
MAP LEGEND
Modern Settlement
Antiquities
Ancient Roads
Archaeological Divisions
International Boundaries

Fig.5

wadis Sulayyil, Hanifa and Nisah meet, all three being tributaries of the major Wadi Sahuba which flows eastwards. A large number of settlements have taken advantage of these geomorphological features within the alluvium, particularly along the perimeter where the groundwater is shallowest.

Layla-Aflaj

Some 140 miles south of Kharj oasis lies the Layla-Aflaj area, (Figure 5) the basin of which is also located within the Tuwayq escarpment system. This plain, too, is dominated by artesian pools, and accordingly a wadi drainage system collects the alluvium from the surrounding region. Water sources are thus drawn from the solutional collapse-holes characteristic of the Layla-Aflaj and Kharj areas. This combination of a ready water supply and a rich alluvial soil was the main factor responsible for the settlements within this complex.

Wadi Dawasir

Wadi Dawasir forms the southern-most area within the Central Province (Figure 5). It is one of the major quaternary river systems of the Arabian Peninsula, which presumably fed the Arabian Gulf as well as Wadi-Sahaba.[83] It encompasses a huge system draining over 150,000 sq. km including the major tributaries. The north of the wadi would appear to be on the western slope of the Rubal Khali basin and is now covered extensively by sand dunes in its eastern section.[84] Many minor settlements and the major towns of Khamasin and Sulayyil are located on the Wadi Dawasir terraces; such a location reflects a primary concern with water extraction and numerous wells within this area, both of the recent past and of today, testify to

this. Although considered unpalatable, the wadi water is in fact used extensively to irrigate crops, and is readily available. This sociological pattern is also implied by, and can be inferred from, the archaeological sites located within the Dawasir system. The gap through which the wadi once passed is now filled with alluvium and the ground-water within the system is obliged to pass through a bottle-neck. As a consequence, the Jabal Tuwayq in effect, acts as a dam or impediment, and the impounded sub-surface water is here closer to the surface west of the mountains. An important outcome of this fact was that the settlements of the early part of the first millennium AD and later, were located chiefly west of Jabal Tuwayq. Stone Age sites are also situated on the alluvial terraces, the Rub al Khali "Neolithic" sites being situated on the basins or terraces of the Dawasir system.[85]

Archaeological Works

A great number of archaeological sites are found in the three above mentioned areas, and most of them are, of course, near the water sources; they can be assigned, in fact, to different periods on artefactual, artistic and architectural grounds. On the surfaces of these sites, there are literally hundreds of scattered mounds, or tumuli, of various types and with various structures, such as the circular tumulus, the pile of stones in triangular shape, or plain, or with a tail. Other types are the tapered tumulus, the stone circle and the subterranean tomb.[86]

Several of these tumuli of different types have been excavated. A different type of tumulus field (212-64; 212-66) was located at the Al Ayun lakes, south of Layla, and two of these have been excavated at

212-64. Both tombs 1 and 2 yielded burial chambers with pottery and human bones.

Many pre-Islamic settlements are also found within these sites since a large percentage belong to the period 200 BC - 600 AD.[87] Several of these sites yielded Hellenistic material in all three areas, particularly at the As Sayh site (212-60). At site 212-63 "Surrounded by the large irrigation complex", a small sounding was made and excavations were undertaken to bedrock, 2.5 m below the surface. The excavated material confirmed the close contemporaneity of the structure with the surface collections. At Khaj, among the discovered sites, only two could be truly described as settlements (207-24 and 207-30). One of these, site 207-24, is located on a low terrace near a now dry spring and here a number of discrete small mounds, together with some walling made of local limestone and mudbrick can be seen. It was among these walls and mounds, highly typical of the Hellenistic period, that pottery was found. A sounding was made in one of the observed building complexes and bedrock reached at 1.2m. The observed fill appeared to be fairly homogeneous and without any noticeable stratigraphy. On the basis of the research and the soundings, J. Zarins placed this site to the Hellenistic period.[88]

A number of irrigation systems were found, principally at Layla and Kharj, suggesting that probably a large area was irrigated by the channels on each site, particularly at Al Ayun and As Sayh (212-60) in Aflaj at 207-24, 207-28 and at Ain ad-Dhila. On the basis of the pottery yielded by the irrigation complex and found at sites 212-64 and 212-74 and the pottery yielded by excavation 212-63, J. Zarins provisonally dated the water system at Aflaj to the Hellenistic period and gave it as his considered opinion that the water system at 207-24

and 207-28 in Kharj could also belong to the same period.[89]

The Reliability of the Pottery of Central Arabia

On the whole, the pottery from the Central Province does not provide sound archaeological evidence for dating, because most of it is from the surface collection. Some indeed is from the small excavated sounding, but the quantity of excavated sherds is too small to be representative, and in any case, does not comprise all the pottery types; the number and extent of the excavations themselves have likewise been on too small a scale to give us the data we need. Among the corpus of the Central Arabian Pottery, no doubt there are some suggestive examples, such as those in the "Hellenistic" style, which may prove to have a chronological significance; but against this point must be set the fact that they came from the surface collection, and were not associated in the building levels with the other pottery. They may yet prove capable of throwing some kind of light on the chronology, but in no sense can they provide a definitive chronology. In general then, it can be said that the Central Arabian pottery cannot supply much sound and reliable evidence at present; indeed, not until adequate excavations have been done. But it could nevertheless be useful auxiliary and supplementary material for the comparative study of the Arabian pottery.

THE POTTERY FROM CENTRAL ARABIA

The pottery discussed below came from the various sites of the three above mentioned areas. The pottery from each of these separate areas is treated separately; in other words within each area, all the pottery from the various sites within that area is treated as one unit.

The reason for this classification by areas and not by sites are that nearly all the pottery came from the surface collection, and may not originate from the site where found; that most of the pottery from each site is homogenous with that of the other sites within that area; and that the pottery of any site is too scanty to be treated as a unit because of the lack of pottery types. However, all the pottery types and relevant techniques are shown separately in front of each site on the Major Charts of Arabian Pottery. Most of this pottery of Central Arabia has been handled and examined personally, and some samples have been analysed petrographically (by thinning the section) personally too. All the sample results are described in the Fabric Types discussion.

Kharj Pottery:

The Kharj pottery came from the following sites: 207-20, 207-24, 207-26, 207-27, 207-28, 207-30 and 207-36. The site 207-30 is known as Al Yamma. This name was mentioned by the ARabian classical writers as an ancient and important place, and as the homeland of the two ancient tribes, Tasim and Jadis. The Greek geographers also referred to the Jadees tribe as Jodisitae perhaps they meant Jolisitae, as one among other names of tribes who lived in Eastern Arabia.[90] The capital was Al Qaryah and was referred to as "Khadra 'Hajar" (The Green Village[91]). Yaqut[92] tells that at Yamama there are ruins and forts belonging to the two nations (Tasim and Jadis and declares that Al Mashqa fort was built by the Tasim. Both George Zaidan[93] and Al-Hamadani[93] mentioned these ruins, forts and the Bateel (huge tower) as having been built by these two tribes, whose origins and beginnings in Yamama are uncertain but who certainly had a long and chequered history. Almost invariably, the two tribes were mentioned together in Arabian history, as was the case with the two other names, Aad and Thamud; and

traditionally both tribes emerged from Àram (The Aramean) as the other ....."Arab". [95] Tradition has it that they struggled one against the other for long years, and at last Tasím asked help from the King of Himyar Taba' Hassan bin As'ad, who later came and utterly destroyed them both, perhaps at the beginning of the fifth century AD; certainly there is no further mention of either tribe from that time onwards. [96]

Perhaps these two tribes were extended to the Qasim area (Zubaidah), mentioned during the discussion of Zubaidah site (see above, Chapter I under the description of the site of Zubaidah).

FORM TYPES

Several form-types occur in the Kharj pottery, but the majority of the vessels are open bowls with a triangular over-hanging rim.

Bowls: 22 types have been classified in the Kharj pottery; all types are similar to those of the standard classifications of the Arabian pottery, except for one example which is a new type (Bowl 4e) with comb decoration (Pl.IV no. 35) Form list and Catalogue Table 17 shows the distribution of this type in each site of the Kharj area.

Jars: 8 types have been classified, but only one is new, J.32 (Pl.LI no. 104) Form-list catalogue (Table 18).

Bases: Only two types occur here, Type 1 with the flat base and Type 7 with the low ring-base. (Table 19).

Incense Burners: Only one Incense Burner of Type 1 is found at site 207-20. (Table 19). The main features of form typology of Kharj pottery appears later in this chapter under the conclusions.

FABRIC TYPES

Different pottery Fabric Types occur at the Kharj area, all of which are similar or fairly similar to those of the other Arabian sites,

except for one type which is distinctive and does not occur elsewhere, except at the two sites (207-75 and 207-79) of the intermediate area between Kharj and Layla Aflaj. In the classification of fabric types this distinctive type is sub-types to FIII, because the basic clay is of Type F, i.e. yellowish-buff, and in addition containes coarse sandy grains. It has been sub-types to Flll on the basis of the petrographical analysis to be discussed later, along with the analytical descriptions of the other types, where necessary.

Type B

This type is a medium fine clay, fairly well levigated, and on the basis of the type and size of the temper is divided into four sub-types.

B1.

The paste is fairly fine but tempered with chaff. In general it is fired in an oxidising atmosphere, except for a few examples with a grey core and the paste is fired chiefly in red throughout. Almost all the examples are uncoated, or have a slip of the same colour as the ware and no decoration occurs in this type. All the examples are wheel-made except for a few hand-made ones. A sample of this type (K2 - 207-24-24) Bowl-type 3a, has been analysed, and shows that the matrix of the clay is birefringent,contains the holes of the burnt chaff ranging in size from 0.05 - 0.4 mm and also scattered quartz grains in silt-size and some up to 0.2 mm. Some pieces of biotite also occur up to 0.07 mm. This type occurs only in three sites of Kharj. Under this type fall the following Form-types:

Bowls: 3a, 13a

Jars: 8b

BIII

The clay of this ware includes some large grits with chaff. The paste is chiefly fired in a reducing atmosphere, mainly in black with a porous core, and coated chiefly in red. All the examples are undercoated, except for one or two examples with a straight incised line, and one example with a wavy combed decoration. A few examples are hand-made and the exteriorly thickened rims of the thick jars are probably coil-made. A sample of this type has also been analysed and the section shows holes (of burnt chaff) surrounded by carbonised tissues, and scattered quartz grains up to 0.2 mm. It also shows crypto-crystalline particles of up to 0.1 mm, some calcite and rarely, hornblendes (Pl.CXX No.a sample K1). For the distribution of this type in the Kharj area see table 20. It comprises the following Form-types:

Bowls: 3e, 9b, 14a

Jars: 2a, 9a

BIV

The clay of ware type does not include chaff but only small grits. The paste is chiefly fired in the same colour throughout, except for a few examples with a black or grey porous core; it is fired in different colours, chiefly in red, the other colours ranging from pink, pinkish buff, buff, pinkish red, light red to red, grey and brown-buff. Most of the exmaples have a slip on both sides, either in the same colour on each of the two surfaces or in different colours on the two surfaces. Sometimes it is applied only to one side. Again, the slip is found in various colours, e.g. red, pink, buff, yellowish brown on the inside and reddish brown on the outside, or in brown on the inside and grey on the outside. One or two examples have a mottled green on reddish grey surface and one or two others have a green wash on the outer surface

only. One example has an incised decoration of double wavy zigzag lines below the rim and on top of it, and one or two are decorated in grooves below the rim. All are wheel-made except for one or two. See Table 21 for the distribution of this type in the Kharj area; it comprises the following Form;

Bowls: 1, 4e, 9c, 14d, 15a

Jars: 2a, 8b, 9a

Base: 1

BV

The clay of this type includes large grits and is found only at the site 207-30 (Al Yamamah) and at 207-20. A sample (K4) of this type, Bowl 8b from 207-20, has been petrographically analysed. The thin section contains abundant feldspars (predominantly plagioclase), but partially also microline up to 2 mm in size; all are turbid and altered, and sub-angular to sub-rounded. Some quartz grains (max. 1 mm) and occasionally black iron are also present. The feldspars may possibly be added, but the overlapping size graduation seems to indicate that they are naturally occurring. In general, the paste of this type is fired in both oxidising and reducing atmospheres, chiefly in red, then also in brownish-grey to brownish yellow. Except for a few examples, all are hard, but the analysed sample K4 is soft and hand-made. The majority of the vessels of this type have a slip, brown on the inside, grey on the outside, or in one colour on both surfaces. All the examples are undecorated. This type comprises Bowls 8b and 8c only.

C:

This type is divided into two sub-types:

CI: Fine, very well levigated clay.

CII: Fine clay, but sometimes contains some small grits.

Basically, both types are the same so they are treated here as one unit. All the examples of the both types are hard, well fired in one colour throughout in buff and pinkish buff, red and, rarely in brownish buff. Nearly all the examples are painted in red or black, on one or both surfaces; for example, red on the interior, fugitive black on the exterior; blackish brown on the interior, figutive black on the exterior; red or reddish brown on the interior and on the exterior. Mowt of these examples came from Al Yamama site 207-30. It is somewhat odd that burnished ware with interior or exterior in red or black paint, is in fact only found at Al Yamama,. One example of white-faced red-ware is also found at this site. All these examples, be it noted, are typical of the classical Hellenistic bowls. Some of the above, by the way, are painted on the inside and incised on the outside in straight or wavy horizontal lines. Form-types:

Bowls: 3c, 4e, 9c, d, 10a, b, 12b, 14a, b, c, 20a.

Bases: Type 7 only.

DII

It seems that this ware is rare for only one example of this sandy ware with grits can be classified. The paste is fired in brownish-red with a brown core and is friable; this type is wheel-made, is found at 207-30 and represents Bowl-type 14.

E

This ware is a fine sandy red ware with uncoated surfaces and the paste is well fired in red throughout. Here the main inclusion of the clay is limestone grist and this ware is distinguishable by tiny yellow rings caused by the explosion of these limestone grits during firing. Only one example of this type is decorated by the incision of straight horizontal parallel lines. All the examples are wheel-made and accurately

shaped. This type comprises the following Form-types:

Bowls: 10a, 13a

Jars: 2a, 3, 6b

F:

This ware is divided into two sub-types on the basis of the tempering material, FII and FIII (Type FI is not occur here).

FII

The paste of ware type ranges from cream to yellow, yellow-ish buff, greenish yellow or greenish buff, and includes grits or chaff, or both, as the tempering material. The paste is chiefly fired in an oxidising atmosphere in one colour throughout, but, very rarely, it has a core of a brown or brownish grey colour. The surfaces are as a rule, of the same colour as the ware either having been smoothed in wet or having had a slip of the same colour applied to them. All the examples are undecorated with the exception of two, one of which has a wavy combed incision on the outer surface, while the other has a raised ridge below the rim. See Table 20 for the distribution of this type in the Kharj area; it comprises the following Form-types:

Bowls: 6a, 9b, 12a, b

Jars: 3, 26

FIII

This clay is basically of Type F (cream opaque) but it is tempered with sand and sometimes with sand and chaff together, but only rarely. It is found only at 207-20 in Kharj and at 212-75 in the intermediate area between Kharj and Layla-Aflaj; but, of course, this latter site is nearer to Kharj than to Layla Aflaj. A sample (K5 from site 207-20) of this type has been petrographically analysed by thinning the section and it shows a dense non-birefringent matrix with a few inclusions

such as sub-rounded to rounded quartz grains (max. 0.7 mm), and rounded limestone fragments in the same size range. Conspicuous too are numerous voids, probably left by the leaching of the limestone, though some are elongated and may well have been left by the burning out of organic matter. The quartz and limestone fragments are, it will be noted, of a similar size. There are also crypto crystalline calcite grains up to 0.3 mm and some pieces of hornblende; but the different size of the quartz grits in the matrix probably indicates that the latter have been crushed and added (see Pl.CXXXI). Because of these inclusions, probably the pottery of this type is locally made evident by the surrounded geological formations in this area. The surfaces of all the examples are of the same colour as the ware and no examples have any decoration, except for one from site (212-75 (mentioned above) which is decorated with the wavy combed line on top of the triangular rim. See Table 20 for the distribution of this type in Kharj and in the intermediate area; it comprises the following Form-types:

Bowls: 4d, e, 12a, b, 26, 28

Jars: 2a, 3, 25.

From all the above, it is evident that several different types of material were used as a temper in the Kharj area. The basic temper was sand, which is found in the two types E and FIII; this was popular at all sites except for site 30 at Al Yamama, where finer wares were popular and site 36 where fine wares were popular also, though they were not as fine here as those at Al Yamama. The other tempers were clearly the grits of various rocks in use at site 207-20 and site 30. In both these sites chaff was also used but probably not in the same degree as the grits, but slightly less. See Table 20 for the distribution of the tempers at Kharj and the other areas of the Arabian Peninsula.

SURFACE FINISH (Table 21)

Four types of surface treatment found at the Kharj are: uncoated, slip, wash and burnish, a large number of the uncoated ware occur here most of them probably of the sandy types E and FIII. Most of the vessels of Types B and C have a slip, mostly on both sides, but sometimes only on one side, the most common colours being red, pink or pinkish buff, yellowish-buff, and very rarely white on red. The wash is probably a less common surface treatment, and most of the washed vessels have it only on the outer surface, particularly in yellow or pinkish-buff. Burnished vessels are, for some reason, found only at the Yamama site 207-30, and all belong to the fine painted wares in black or red: the burnish occurs either exteriorly or interiorly.

Decoration (Table 21)

It seems that decoration was not common in this area. Only a few examples of incised decoration are found, the incised designs usually taking the form of a straight horizontal line or lines, or a wavy line or lines below the rim of between the other lines. One example of an incense burner has been found at the site 207-20 decorated in diagonal lines. The other type of decoration is painting (without designs), this has been mentioned previously in Type C . See also Table 21 for the distribution of decorations.

Method of Manufacture

Almost all the examples are wheel-made, except for a very few hand-made ones. One or two vessels have finger marks on the inner surface, probably having been held accidentally while wet.

CONCLUSION

The most common feature of Kharj pottery is the pressence of open bowls and narrow straight-sided necked jars with triangular over-hanging rims of coarse yellowish buff ware, FIII. These wares FIII and E are indeed the most characteristic fabric types of Kharj. The other most characteristic feature of this pottery is the presence of examples of fine classical Hellenistic open shallow or medium depth bowls (types 10a, b and 4e) in black or red paint, some of them burnished either on the exterior or interior surface; then another type with incense burner is thought to be of the Hellenistic period. Again, what strikes one about all this pottery is the scarcity of decoration, most of the vessels being entirely undecorated, except for a few already noted, for example, the Hellenistic open bowls with combed or single-stroke wavy incision on the exterior. Two other rare examples of the Kharj pottery claim attention and were found in the tomb field; these are the yellow-faced red ware and the chaff-tempered coarse red ware.

Layla Aflaj Pottery

This came from the following sites, 212-56, 212-58, 212-59, 212-60, 212-61, 212-62, 212-63, 212-64, 212-66a, 212-66b, 212-67, 212-69, 212-70 and 212-74b.

Important Note

Sites 212-75 and 212-79 lie in the intermediate area between Layla Aflaj and Kharj (as has already been mentioned). The pottery-types of these two sites are referred to along with the pottery of Layla Aflaj and Kharj; that is to say, if any example is similar to one of the Aflaj type, it is referred to along with the Aflaj type.

FORM TYPES

Several different form-types occur in the vast area of Layla-Aflaj and probably belong to more than one period.

Bowls:

39 types have been classified in this area, all of them in fact similar or fairly similar to the major standard types of Arabian bowls. For the distribution of Bowl-types see Table 17.

Jars:

As usual, here again, the jar-types are fewer than the bowl-types, only 13 having been classified. No new types have been classified in this area. Table 18 shows the distribution of the Jar-types.

Bases:

9 types of base are found in this area, but here again there is no new type. Table 19.

Incense Burners

Only two fragments of incense burners are found at site 212-60. Each fragment comes from a separate burner because one is of reddish pale-yellow clay and the other of red clay; both have a black surface and a square shape, Type 1(Hellenistic style) but without incision.

Token or Counter:

Only one token or counter is found at site 212-63. This is a red sherd with a chipped edge in a perfectly circular shape.

A more discussion of the form typology of Layla Aflaj pottery appears in this chapter in the conclusions.

FABRIC TYPES

The Layla-Aflaj pottery is classified into nine types:

Type B: This is basically divided into four sub-types:

BI: The clay is fairly well levigated and has added chaff as the

temper. A sample has been petrographically analysed and shows that the matrix is birefringent and contains quartz grains ranging from silt-size to 0.15 mm, some crypto-crystalline, and iron oxide. There are also some voids surrounded by carbonised tissues, which may have been left by the burning out of the chaff (Pl.CXIX no a). This sample is of the sherd of bowl-type 14b which came from the tumuli field at site 212-64. Most of the examples of this type are fired in red and reddish buff or tan, with a grey porous core. The surfaces have a red slip, but sometimes a black or green slip. None of the examples have any decoration except for one or two which are decorated in grooves. Almost all the examples are wheel-made. These types represent the following form types:

Bowls: 6a, 8b, 14b, 18a and 21b.

Jars: 1c, 2a, 3 and 32a

BIII

The basic clay of this ware is of Type B1, but includes large grits instead of chaff. The paste is generally well fired, chiefly in red or tan; some of the vessels however are fired black throughout and others have a black or grey porous core. The material of this type which came from the tumuli field and the tombs has more grits than B1, is basically of a red colour, and it is hand-made. The majority of the wares of this type are black or green faced. Some are coated with a red slip and a few have a wash in reddish-brown on both surfaces. All these examples are undecorated, except for two, one of which is incised in the "saw-tooth" decoration below the rim, while the other has a paint or wash in reddish brown around the rim exteriorly and interiorly. This type comprises the following Form-types:

Bowls: 9b, 10a, 11f, 14b, 15a, 18b, 21a, 32 and 33a.

Jars: 1a and 32a

BIV

This ware is a medium fine clay and fairly well levigated, but probably having had some small grits added as the tempering material. The paste, however, is fairly soft, generally well fired and the vessels themselves well made, but there are some examples which have a black or grey core. The vessels are chiefly fired in red, and for the most part coated with either a black or a green slip, indeed these black and green faced wares are perhaps the most characteristic feature of the Layla-Aflaj pottery - (a few examples of the latter style are also found in Types B1 and B111, as has been remarked previously). J. Zarins referred to them as "Layla Black and Layla Green ware".[97] The other vessels of this ware (BIV) are fired in orange, buff, red, brown, tan, grey or black throughout. They are generally hard, and have been coated with a slip either in one colour on both sides, or in two colours, brown on the inside, and red on the outside, other possible colours being orange, buff grey and tan. Most of the vessels of this type are bowls of Types 4a, 4c and 4e, mainly with the triangular overhanging rim and with single or double wavy combed lines, but some having a combination of incision and punctuation. One example has a chain-ridge decoration below the rim and another has two rows of impressed circles.

This type comprises the following Form-types:

Bowls: 2, 4a, c, e, 6a, 8b, 9b, c, d, 10a, 11a, f, 12 b, 13a, 14b, 14c, 17, 23b, 33b and 52.

Jars: 1a, 2a, 3, 5, 8a, 9a, 26, 32a.

Bases: 1, 4, 8a, 10

Incense Burners: Type 1 only

BV

This ware has large grits includedin the clay, perhaps as the temper. It is probably not common in this area, only three vessels having been classified and all with a red and tan firing. One example, Bowl 33b, is decorated in the chain-ridge style; another example, Bowl-type 21, is hand-made; the third example is a jar, Type 2a. All three are uncoated.

Type C:

This type is divided into two sub-types:

C1: The clay is very fine and almost all the sherds very thin.

C11: The clay of this type is also fine, but has very fine and small grits, and the sherds in comparison with C1 are slightly thicker. In general C1 and C11 are the same and hence are treated as one unit. All the examples are well made and well fired, but, while some of them are hard, others are soft. They are fired chiefly in pinkish-buff, pink and red, other (uncommon) colours being tan and orange. A few examples are white-faced pinkish-buff, but black faced ones are more common. Again, some are red ware, either uncoated or merely wet-smoothed. Not uncommonly, some are painted all over in red, while one example has a red painted decoration in a "chequers and lozenges" design. All the examples of C1 are undecorated, except for two, one of which is scored below the rim and the other lightly incised near the base, while most of the examples of C11 have an incised decoration of straight or wavy lines and a combed decoration below the rim. A sample, (L2) of a fine type C1 (Bowl 9a, site 212-58) has been analysed petrographically and the thin section shows that the sherd is untempered, that the matrix is birefringent and contains silt-sized quartz grains (max. 0.2 mm) and that some pieces of biotite and some chrome ore are present also. Type C

comprises the following Form-types:

Bowls: 4c, 3, 6b, 9a, d, 13a, 14a, c, 21a, and 22

Jars: 3, 18 and 26

Bases: 1 and 3.

DII

The clay of this ware is sandy and contains some grits also. It seems that this is a rare type, only two examples having been classified, both of them from site 212-64 and both of them jars of types 2a and 19. One example is fired red throughout, the other has a grey core. Jar 19 is decorated with a raised band on the shoulder.

A sample, L6, of a green surface of this type (BIV) from site 212-63 has been petrographically analysed, and the thin section shows that it has a dense matrix of angular to sub-rounded quartz grains up to 0.4mm, some apparently burnt or vitrified areas (up to 1mm), possibly some rhyolite in rounded clay pellets (max size 0.5mm) and apparently some kind of siliceous deposit (containing some limestone and quartz grains on the surface, see Pl. CXXIII no.a).

E:

This ware is a fine red sand ware with a lime inclusion; only one example is found at site 212-79 in the intermediate area between Kharj and Layla Aflaj.

F:

This ware is divided into two sub-types:

F1: is a glazed pottery, and the paste is yellowish cream or buff, usually belongin g to a fine ware. The vessels were probably glazed on both surfaces in a lustrous pale blue or green. This type comrpises the following Form-types:

Bowls: 3a, 4a, 10a.

F11: The clay of this type includes grits and sometimes chaff, the colour of the fired paste ranging from cream to yellow, yellowish-buff and greenish yellow. Almost all the examples are fired in one colour throughout. The majority are probably uncoated, but the surfaces have been smoothed in wet. A very few examples have a slip of the same colour as the ware. All the examples are undecorated, except for three. A sample of this type has been analysed petrographically and showed non-birefringent orangish matrix, contains scattered silt size, quartz some iron ore (max. 0.02 mm) iron oxide up to 0.1 mm, some horn blend, reaction rings and crypto crystalline, see Pl.CXXIX, no. b.

All the examples are uncoated except for three which are decorated in a wavy combed decoration and one in red paint with a "chequers and lozenges" design. This type comprises the following Form-types:

Bowls: 4a, c, d, e, 6b, 8b, 14c, 15a, 23a

Jars: 2a and 12

F111

This is a coarse yellowish-buff ware, a type found, it will be remembered only at Kharj. Only one sherd was found, Bowl 4e, from site 212-75, which is the intermediate area between Kharj and Layla-Aflag, so very probably this piece was transferred from Kharj to the site 212-75. From all the above, it seems that the most common fabric was medium fine and fine with small grits. Chaff was also used, but in lesser quantity, perhaps commonly at sites 212-64 and 67 and rather less at 63. There is a market scarcity of sand here, only a very few traces of sand temper having been recorded.

SURFACE FINISH

Two types of surface finish are very common, the slipped and the

uncoated types, while two others are rare, namely the washed and the glazed types. All these surface treatments have already been described in the course of the discussion of the fabric types, but it is well to remind ourselves that the most effective one is the black and the green slip on the red ware. By a lucky accident, a freak potsherd with a surface half green and half black was found at site 212-56 and on the basis of this J. Zarins [98] suggests "that the variation in colouration is probably a differential one dependent on nothing else than the firing temperature. If this is so, we may have a clue here to the method of production of the black and green slips."

Decoration

Three types of decoration occurring in the Layla Aflaj area are incision, painting and applied ornaments. Incision in different designs is by far the most common decoration, but the most popular form of incision is the combing of different designs and punctuations, based on straight and wavy horizontal lines. It seems that painted wares are fewer. Painting was practiced either on the inside, generally in red or on the outside, generally in black, or on both surfaces in red on the inside and in black on the outside. Designed painting is rare, only a few pieces with red painted designs having been found. Applied ridge decoration is also rare, only two examples of chain-ridge design having been found in this area.

CHRONOLOGY

The pottery of the Layla-Aflaj area is of several different styles and perhaps of different period. Thus, for example a very distinctive punctuation triangular base found on the Aflaj sites and also at Fau led

J. Zarins to suggest a date between the first and fifth centuries AD, while the open bowls, with triangular overhanging rims, curvilinear incisions and punctuated designs have been dated by him to the early part of the first millennium AD. The combed designs suggest a date of the late pre-Islamic era of the first millennium AD. The slipped Layla black and green wares, incised and unincised, have been associated with the material of a specifically Hellenistic style, such as the open bowls (Bowl-types 4a, c, d and 9d) the burnished and painted bowls, such as the white and red black faced pinkish-buff bowls, with parallels at Ain Jawdn and Thaj, the incense burners and the alabaster bowls; all these surely suggest that this Layla-Aflaj black and green pottery could well be of the "Hellenistic" period.

By and large then, the pottery association of the Layla-Aflaj basin provides a broad date-range from perhaps the first century BC to the sixth century AD.[99]

CONCLUSION

By far the most common pottery in the Layla Aflaj area is the medium sized and large open bowls with triangular, overhanging rims, Type E. The other characteristic feature of this pottery is the presence of small open bowls of a specifically Hellenistic shape, white-faced pinkish-buff and red-faced and black faced on red, or painted bowls. Most of the jars here are small and thin with a narrow neck, the large heavy storage jars being much fewer. Unlike the case of Hajar bin Humeid there is an absence of lid-ledged vessels, only one lid of steatite ware having been found. As in the case of the other Hellenistic sites in Arabia, here too incense burners were introduced but only to areas where material in the Hellenistic style of pottery is

found.

Fine wares are usual in this area, and fine fabric is used for both kinds of vessels, bowls and jars. The use of sand is rare and perhaps the extant sandy wares were imported from neighbouring sites, such as Kharj, because they are very similar to types E, D11 and F111, found at Kharj. The most common, and indeed the salient feature of this pottery of this area is the black or green faced ware; this is a fairly soft but well made red ware (Layla Black and Layla Green Ware). Very frequent too is the incised decoration, particularly punctuation and combing in different designs. Thus, although the bulk of the pottery of this area clearly belongs to several different periods, the Hellenistic material, and particularly the black and grey ware are its most obvious, as well as most distinctive features.

DAWASIR POTTERY

The pottery of this area came from the following sites: 211-1, 211-2, 211-6, 211-22, 211-23, 212-21, 212-33, 212-43 and 212-53.

FORM TYPES

Unlike the case of Layla Aflaj, not many different Form-types were found in the Wadi Dawasir area, even though some new types were, it is true, found here, whereas no new types were found in the Layla-Aflaj area.

Bowls: (Table 17).

17 Bowl-types were found in this area, but all are similar to the standard types of Arabian Pottery, except for types 31, 32, 33a (Pl.XXII) and 33b which are new types. See form list and catalogue.

Jars: (Table 18)

Only five types of Jar were found. Jar 1d is a new type (Pl. XXXV, no. 9) Form-list, catalouge.

Bases: (Table 19)

Four types of base were found - type 12 is a new type (Pl. LXIV, no. 64) Form-list, catalogue.

Incense Burners: (Table 19)

Three Incense Burners were found at three sites, 211-1, 211-22 and 212-2. One is an uncoated one, the second has punctuation and the third is incised; all are of the square shape of Type 1.

Handles: (Table 19)

Only one handle nose-lug of Type 1 was found at site 211-2.

Token or Counter:

As at Zubaidah, Thaj and Aflaj, here again a circular pottery sherd was found (at 211-22) which has been chipped all round; but unlike those of the above mentioned sites, this token has a hole near the edge. A more discussion of form typology of Dawasir pottery appears in this chapter in the conclusion.

Twisted, Rejected Bowls

As at Zubaidah, here also a pile of rejected bowls, dumped in the slag was found at site 211-2. Pl: LXXVI, no.37).

Fabric Types

Nine Fabric types have been classified in the Wadi Dawasir area.

Type B:

By far the most common fabric type in this area is Type B. On

the basis of the included tempering material, it is divided into five sub-types. All the other appropriate techniques are the same for all these sub-types. All the other appropriate techniques are the same for all these sub-types, hence they have here been discussed under one heading (B) apart from the differences arising from the temper and the Form-types.

BI

The clay is fairly well levigated, chaff having been added as the temper. A sample of a bowl has been petrographically analysed and the thin section shows a reddish-orange, birefringent, dense matrix, some small quartz grains ranging from silt size to 0.2 mm, iron ore, iron oxide, clinopyroxene and some voids, which may have been left by the burning out of organic matter (chaff). See Pl.CXVIIIno. b. This type comprises the following Form-types:

Bowls: 17

Jars: 16

Bases: 11

BII

This ware is similar to type BI, but instead of chaff some small grits are included. This type comprises:

Bowls: 15b and 33a

BIII

This ware is the most common and comprises most of the vessels of Dawasir. The clay is the same as in Bl and Bll, but it includes a high proportion of grits along with the chaff added to the clay as a tempering material.

Samples of this type have been petrographically analysed. The thin section of the sample D2 (211-1) shows a red birefringent dense

matrix and angular and sub-rounded quartz grina (max. 0.4 mm). It also shows pieces that may have been calcite tempered or may have contained crypto-crystalline calcite in the clay after it had been leached out. There are also reaction rims up to 0.3 mm and much iron ore and iron oxide. This type comprises the following Form-types:

Bowls: 9b, c, 14a, b, 17, 22, 24, 32, 33a, 48

Jars: 1a, d, 2a, b

Bases: 7, 8a, 11, 12

Incence Burners: 1

Nose-lugs: 1

BIV

This ware is the same as B11, i.e. with small grits, but without chaff. A sample (D3-211-22) from a pile of rejected wares (Pl.CXX no. b), has been analysed petrographically. The thin section shows a birefringent matrix of grey colour containing many angular and sub-rounded quartz grains (max. size 0.7 mm) iron ore, iron oxide, small pieces of biotite and some mica. This type comprises the following Form-types:

Jars: 2a

Bases: 3

Dumped or rejected bowls:

Token or Counter:

BV

The clay of this ware is not well levigated and includes many large grits, perhaps as a tempering material. This is a rare type at this area, only one example having been classified: Base 8a Table

Type B was generally fired in a reducing atmosphere with a black or grey core; so examples were fired black or grey throughout. A

few were fired in an oxidising atmosphere and the paste was chiefly fired in dark red, the colours ranging however from buff, buff-red through red to reddish-brown. Most of the examples have a slip on both outside and inside, either in one colour on both sides or in different colours on each side, for example, grey inside and red outside, but some examples have a slip only on one side. The slip colours are generally red, brown grey, black, white and green. A few examples are uncoated, the surfaces having been smoothed in wet hand. A wash is probably common in this type, having been applied particularly to the outer surface, chiefly in yellowish cream, yellowish green or white. The majority of the vessels of this type are undecorated, except for a few, which have incised designs, such as straight and wavy lines and "saw-tooth". Some examples have punctuation; this is found particularly on incense burners. A rope-ridge decoration with a nose-lug is found on a jar, Tup- 2a. All these examples are competently wheel-made, except for one or two which are crudely hand-made.

Type C1

This ware is a fine ware, only a few examples of which are found in this area in Bowl type 31 and Jar-type 8a. Bowl 31 is a thin bowl, white-faced on pink, while Jar 8a is thicker, with a dark red face on red. Bowl 31 has parallel grooves on the outer surface. All the examples are competently wheel-made.

Type D:

This ware is divided into two sub-types: D1, sandy with grits and chaff and D11, similar to D1 but without chaff. D1 includes Bowls 1a, 9a, c and 44b (Table 17). Example 1a has a red slip on both sides, but no decoration, 9a is uncoated but is decorated with a band of short diagonal incised lines below the rim. 9c is a tan ware

with a black burnished surface. Type 33b (Pl.XXIIIno. 197) is a red ware with a "saw tooth" decoration. Dll examples are red and tan wares some of them are uncoated, others coated in a red slip. One example has a punctuated decoration, but the rest are undecorated. Dll comprises Bowls 14a and 21b and Jars 46b, like the Tuwair type with a horizontal lug-handle.

Type Hl

This is a coarse ware tempered with crushed steatite; it is also a rare type, only found at 211-23 and 211-33 in this area. The paste is fired chiefly in red, sometimes with a black core and sometimes black throughout; all the examples are uncoated and undecorated. This type comprises Bowls 13a and 14a only.

Type K

A sample Ll of Bowl 1a from 212-21 has been analysed petrographically and the thin section shows that the basic inclusion is a grog (crushed pottery). It further shows a dense anistropic matrix, an abuldance of very small quartz grains, and grog (max 2.5 mm) which itself includes quartz and is chemically different from the matrix. (See Pl.CXXXII no. b). It is not certain whether the other sherds are also tempered with grog or not.

From all the above it seems first of all that ware B, as at Zubaidah and HBH, was the most common type, particularly the chaff-tempered variety, and that here again this was the favourite temper and it is dominant in most of the Dawasir area. In the second place, we note the grits, probably of different rocks, used as a tempering material. Sand tempered vessels are not common and the crushed steatite tempered pottery is rare. The use of grog as the tempering material in Dawasir is not at all certain; nor is it certain whether this practice

was common or uncommon or whether this type of ware was imported to this area or not. Crushed pottery (grog), as has already been mentioned, was certainly used at Zubaidah, though its use was not very common, and also at site 208-91 in Eastern Arabia. It was also used of course at Adiat al Sultan and Raibun, but there, along with crushed flint, Type HlV. However, only further petrographical analyses of samples from this area can elucidate these questions.

Surface Finish

Four types of surface treatment are used in the Wadi Dawasir area, slip, uncoated, wash and burnished, all of which have been discussed under the Fabric Types and particularly Type B.

Decoration

Compared with the Layla-Aflaj areas, decoration in the Dawasir area is perhaps less common. Only a few examples are found, but with various incised designs, such as straight and wavy, zig-zag horizontal lines, "saw-tooth" punctuation and impressed circular dots. Only one example of rope-ridge with a small nose-lug is found. The majority of the pottery is, however, undecorated.

Chronology

The Dawasir Pottery clearly exists in different styles, and accordingly, it is more than likely that the bulk of it belongs not to one period only, but to several periods. The presence of chaff tempered pottery as at Zubaidah and HB [illegible], may well have a long history, but it is far too early to attempt to date it until excavations have been carried out. There are, however, several other finds which

substantiate the late "Hellenistic nature" of the Wadi Dawasir assemblage, such as the stone bowls (alabaster and steatite) and th eincense burners found at Zubaidah, [100] Thaj, [101] HBH [102] and Timna Cemetry [103]. On such grounds, the Dawasir finds have been placed by J. Zarins [104] within the last century BC and the first century AD.

CONCLUSION

The most characteristic feature of the Dawasir pottery is that the rims of bowls and some jars are flattened at the top; only one example of a jar, Type2a , has a rounded rim. A unique feature of this pottery is that only one jar has a short horizontal lug, Type 46b; this jar is in fact very similar to one found at Tuwair (Pl.LV, no. 119). The other most characteristic feature is that almost all the bowls are open, and the jars have a narrow, short or medium-high neck. All the bases here are ring bases of Type 7 and 8a; only one is of a unique type, as we have seen, is Type B, with chaff and grits and a fairly soft red paste. The sandy type Dl and Dll is less common, but the crushed steatite pottery, unlike the case of HBH, is definitely rare.

A noteworthy characteristic of this pottery is the presence of incised and punctuated incense burners, which have some chronological significance. An unusual characteristic of the Dawasir pottery, unlike that of South Arabia, is the scarcity of the burnish; only one example is found. Again, unlike the case of the Layla-Aflaj pottery, decoration is rare. B Type pottery is locally made, on the evidence of the presence of the rejected wares, which have been petrographically analysed; (See above "Ware BIV under Fabric section in this chapter), while with regard to the steatite-tempered and sandy wares, cannot be certain whether they were imported or locally made.

GENERAL CONCLUSION ON THE CENTRAL ARABIAN POTTERY

Each of the three above mentioned areas is characterised by one or more distinctive pottery types, but in this province as a whole there are only a very few pottery types in all, distributed in two or three of thsee areas. On the other hand, the "Hellenistic material" is distributed in greater or lesser quantitities in each of the three areas. The most characteristic form-feature at Dawasir is that the rims of the vessels are generally flattened at the top and have rather sharp edges. All the bases here are ring bases. A similar type of rim is indeed also found in the Aflaj and Kharj areas, but not as a common feature. Vessels with the triangular, overhanging rims are on the other hand common in the Aflaj and Kharj areas but are not found at Dawasir. The most characteristic fabric feature of the Dawasir pottery is the thick, chaff tempered type with a black or grey porous core. A similar type is also found in the Layla-Aflaj and Kharj areas, but it is less common. The most characteristic feature of the Kharj pottery is the yellowish-buff coarse (sandy) pottery, while in Layla Aflaj it is the incised black and green-faced red ware. However, the crushed steatite tempered pottery is a very rare type, only a few examples having been found in Dawasir.

A noteworthy characteristic of all the Central Arabian pottery is the scarcity of the burnished finish, only a few examples, believed to be of the "Hellenistic" period, having been found at Al Yamama (207-30) in the Kharj area, and only one piece at 212-21 in Dawasir. The most common decoration of the Central Arabian pottery is incision in various styles, particularly combing, but this is not found at Dawasir. In Dawasir instead of combing the "saw-tooth" is found, a style not found at all in the Layla-Aflaj and Kharj areas. The Hellenistic style

materials are of course, found in all areas, particularly incense burners, but the Hellenistic glazed ware is only found in the Layla-Aflaj area.

As a rule, it can be said that the pottery which was collected from the surface of the tumuli fields at Layla and Kharj fits into the categories derived from the larger and more comprehensive collections made at neighbouring sites in each area, whereas the excavated material is less easily integrated. For example, incised black and green-faced red ware is the common style in the Layla-Aflaj pottery collected from the surface, while the excavations at 212-64 in the same area yielded only one example of the green-faced ware. It seems that there are many examples which are broadly speaking, parallel to the examples found in other sites of the Arabian Peninsula; very probably the rare examples here were importee into this province, since all the areas are located on the ancient trade route, Marib-Gerrha'a; Yamama was the point where the route turned eastward to the coast of the Arabian Gulf, and, according to Amer, [105] there was a route starting from Yamama and running through the Wadi Hanifa to Riyadh through Unaizah-Buraidah to Hail, where it connected up with the second major route Gerrha's-Taima, see map, Figure 1.

CHAPTER IV

EASTERN PROVINCE OF THE ARABIAN PENINSULA

It must be made clear at the outset that the term "Eastern Province" in this piece of research includes not only the Eastern Province of present day Saudi Arabia, but also some islands of the Arabian Gulf such as Failaka and Bahrain. (See Figure 6).

The Importance of the Eastern Province and its Hellenistic Occupation

This region has at all times played a leading role in the seafaring and trading activities that make the Arabian Gulf one of the most commercially influential seas in the whole of the historic Near East. Indeed, the history of some areas of this region goes back far enough to predate the 'Ubaid' period or to belong to a period contemporary with Ubaid 3 - 4 in Southern Mesopotamia. This can be established today on the basis of the Ubaid pottery.[106] It is certain that there were very early commercial contacts with Mesopotamia, the earliest clear traces of which begin about 5500 BC and continue through the rise of Dilmun (modern Bahrain) and probably of the neighbouring mainland, during the third millennium, i.e. the Sumerian period, when the Arabian Gulf ports were already of enormous importance.[107]

Many ancient sites dating from the third millennium have been found in the Eastern Province, e.g. Bahrain, Failaka and on the mainland along the coastline of the Gulf, and these have been dated on the basis of the Dilmun red-ridge ware. It may also assume that the commercial relations between this region and Mesopotamia were continued into the later periods,

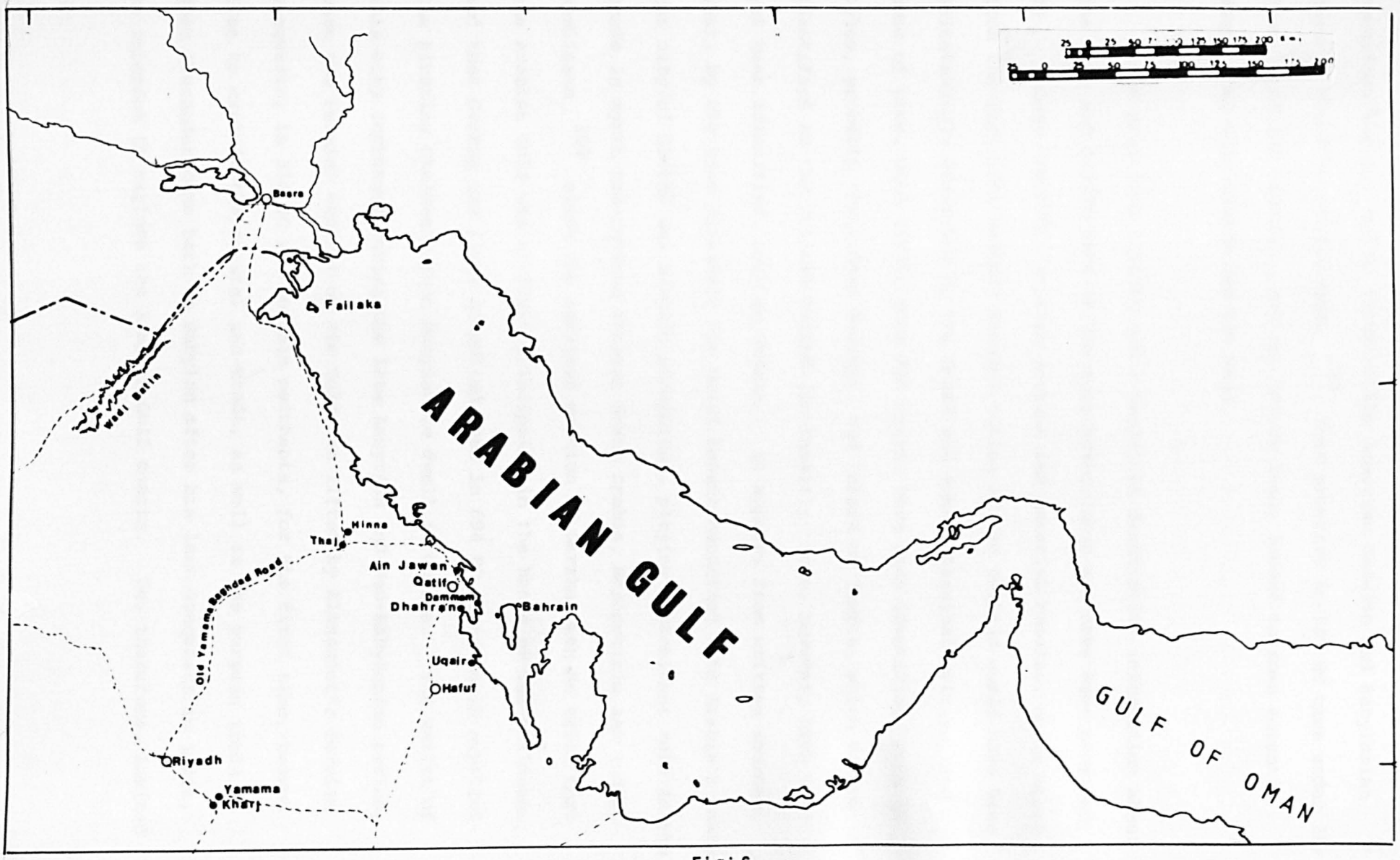

Basra
Failaka
Wadi Batin
ARABIAN GULF
Hinna
Thaj
Ain Jawan
Qatif
Dammam
Dhahrane
Bahrain
Uqair
Hofuf
Old Yamama Baghdad Road
Riyadh
Yamama
Kharj
GULF OF OMAN

Fig: 6

and that these relations are evidenced by the locally found commercial cuneiform tablets and by those of the Assyrian Kassite and Babylonian periods found in Mesopotamia. [108] This province in 539 BC came under the control of the Persians, and so, before long, became to some extent acquainted with Greece and the West.

The political history and a wealth of descriptive information about the Near and Middle East of the late Pre-Islamic era have been provided by countless legends written sources and material remains, quite apart from the fact that several ancient cities of the Semitic world have been painstakingly described by the Greek and Roman classical writers, and that some of them, with little room for doubt, have been identified, such as Tylos, probably the modern Bahrain, and Ichara or Ikaros, which can be identified as the Failaka Island (in Kuwait); some, however, have not yet been identified, such as Gerrha. It appears from written sources, that, by the time Alexander the Great became concerned with Arabia's wealth the city of Gerrha was already prosperous, playing a prominent role in the trade in myrrh and incense between South Arabia, Mesopotamia and India. Rawlinson [109] gives the earliest mention of Gerrha when he tells that the Arabian Gulf was at first principally in the hands of the Chaldeans, and that Gerrha was first inhabited when in 694 BC Sennacherib expelled the pirating Chaldeans from Babylon to dwell in Gerrha. The wealth of this city increased during the late Assyrian and Neo-Babylonian period, when the Persian control of the Gulf was lifted by Alexander's Persian conquests, in 334 BC and Gerrhan merchants, for the first time, became free to exploit the coastal sea-trade, as well as the caravan trade. When Alexander came back to Babylon after his last conquests in India, he intended to explore the Arabian Gulf coasts. He, therefore, invited

the ambassadors of the surrounding nations to visit him; all did so except that of Arabia, and, in retribution, punitive action was taken against the latter country. It was Arrain [110] however who first documented the famous voyage taken by Archias, at Alexander's request, around the Gulf coasts, and related how the expedition returned with tales of thriving prosperity and fabulous wealth; acting on these tales, Alexander prepared a great predatory campaign, but died suddenly in 323 and his project evaporated. After his death, the relations between his ruling successors, the Seleucids, and Arabia remained unchanged. In 205 BC Antiochus III (223 - 187 BC) [111] went on the expedition mentioned by Polybius to conquer Gerrha and the neighbouring tribes and to procure control of the Gulf trade; but he did not succeed and decided to exact tribute instead. The Gerrha'eans [112] themselves succeeded in buying their freedom, but the Seleucids managed to prevent Greek merchants from sailing up the Gulf as competitors, and to keep the Gerrha'eans more or less under control, in order to obtain from them a large portion of the Arabian and Indian goods held by their merchants. [113] Gerrha reached its peak of development and prosperity thereafter (during the third century BC), when almost all the east-west trade was diverted through it.

During the Seleucid period, the maritime and the caravan trades of the Hellenistic world in general were greatly developed, and in particular the caravan routes had slowly made use of the well-known roads, because these were provided with wells and with guards between the resting places. Hence the internal trade between the Hellenistic States themselves also developed, the most important caravan centres (or cities) at that time being the Seleucia on Tigris, Palmyra in Syria and Petra and Gerrha in Arabia. [114] Perhaps the most characteristic feature of the

Hellenistic era was the establishment of new cities, a practice which started in Alexander's own day. These new cities were invariably organized in the Greek style; the archaeological excavations at some Hellenistic settlements in the Eastern Province of the Arabian Pensinula have clearly revealed the dominant Hellenistic influences in culture, religion, art, architecture, sculpture, pottery and coinage. Later, in the Parthian period (164 BC - 224 AD) [115] this Hellenistic culture blended with the indigenous oriental culture to produce a thoroughly cosmopolitan and syncretistic type of civilization. By the first century BC, the Parthians controlled all the former Seleucid territory and even took over the Arabian trading monopolies.

The settlements in the Eastern Province were directly affected by all this, because, by 100 AD, the Parthian merchants [116] had learnt to navigate by the monsoon winds, thus making coastal "port-hopping" unnecessary. They now sailed straight to Mesopotamia, and even India and Ceylon, without troubling to anchor at ports such as Gerrha. In the same period the Roman trade detoured the Gulf and made use of the Red Sea; this last shift, of course, took away much of the Sabaean caravan trade and Gerrha was no longer so necessary. In 224 AD, [117] the Sassanian Empire displaced the Parthian, and soon controlled the Gulf trade, even creating new Gulf ports, and a century later, in 320 AD, Shapur II, of this Sassanian dynasty, invaded Arabia and rapidly swept across the whole Arabian Pensinula. Later, in 637 - 650 AD, this Sassanian Empire was well and truly conquered by the Muslim Arab armies.

THE ANCIENT SITES OF THE EASTERN PROVINCE OF THE ARABIAN PENINSULA

1. BAHRAIN

The small Island of Bahrain, situated in the Arabian Gulf, measures not more than thirty miles from north to south and fifteen from east to west (figure 6). What perhaps most strikes the visitor is that it contains numerous large grave mounds, each of them six to ten, and sometimes as much as twenty feet in height, and some showing clear signs of having been dug out by robbers to uncover the grave beneath. Each of these mounds covers a stone chamber containing a human burial, and most of them lie in the northern part of the island, where it is widest. Along the northern and north-western coastal strip of Bahrain lie extensive plantations of date palms, interspersed with fields of alfalfa. The rest of the island consists for the most part of open, windswept desert, plains of gravel and eroded limestone buttes, with the 440 feet high "Jebel Dukhan" (Mount of Smoke), rising in the centre.

Archaeological Works

Several archaeological expeditions and private individuals have worked in this island, bent on resolving the mystery of the grave mounds. One of these expeditions was the Danish one which operated over a front of 600 miles, from Kuwait (Failaka) at the head of the Arabian Gulf to Abu Dhabi and Buraimi in the South east. A large number of ancient settlements were discovered at Bahrain by this expedition, among them two large ones, both of which were excavated at the time.

Qal 'at al Bahrain

This second large site lies some miles to the east of Barbar at a

bend in the coast known as Ras-al-Qala'a. Here a huge low mound is crowned by the ruins of a fort, probably built by the Portuguese in the sixteenth century.

The excavation

The preliminary excavation showed this mound to be composed of the debris and ruins of a large city, including the structure probably of a palace. This work was further extended to a large area (though small in relation to the 200,000 square yards covered by the mound), [119] and showed five phases of seven or eight cities, buried one on top of the other.

City V (Phase 2) was represented by an accumulation of rubbish and debris and materials for the rebuilding of houses. This City V (Phase 2) is dated to the early "Hellenistic" Period. (See below in this Chapter under the Chronology.)

The Reliability of the pottery of City V of Qal'at al Bahrain

It can be claimed for the pottery of City V levels that it presents exceptionally sound archaeological evidence and that it has decisive chronological significance for several reasons. Firstly, Bahrain is located in the strategic location (see above in this Chapter for the discussion of this reason). Secondly, the site itself is a large one and has been excavated on a large scale and as part of a large area, and has yielded the stratigraphy of the various periods of its long history. Again, the pottery is reliable because it came from the occupation levels of building Phase 2. An even more cogent factor is the presence of the imported and clearly dateable black-glazed pottery (Attic) of the early Hellenistic period with the City V pottery. Finally, the phases (or the

cities) above or below City V are likewise datable on the basis of their archaeological materials, and hence we possess additional guidelines for the accurate dating of the materials of City V. For the above-mentioned reasons, the pottery of City V can be regarded as thoroughly reliable archaeological evidence for the chronology of the pre-Islamic pottery of the other Arabian sites.

The Pottery

All the pottery discussed below came from City V level at Qal' at-al Bahrain. A good number of the recovered vessels are in fact in complete shape, but the great majority are incomplete, but understandably the complete vessels are very helpful for the realization and the recognition of the shape of the incomplete ones. Some of the pottery of this site has been handled, and some samples have been petrographically analysed by the writer.

Form Typology

Several form-types occur in Phase 2 (City V), at Qal' at al Bahrain, and these have been classified following the usual practice, on the basis of the Zubaidah pottery.

Bowl-types

Thirteen major types and eleven sub-types are found at this site; see Table 17 for these types and for the comparisons. Most of the Bowl-types are similar to the main types, except for bowl-types 3g(Pl.111 No.26) and, 9f(Pl.IX No.85), which are here designated as new types; for detailed descriptions see Form-list and Catalogue.

Jar-types

Eight jar-types are recorded (See Table 18), three of them being new; these are 28a, (PI.XLIX No.98), 45(PI.LV No.117)

(For description in detail see form-list and catalogue).

Base-types

Four base-types are found; only base-type 23 is new (Plate LXVII No.75). For descriptions see Form-list and catalogue. See also Table 19 for the parallel examples in Arabia.

Handle-types

Only two handle-types are found at this site: Types 1 and 2. (See Table 19). More discussion of the form typology of Bahrain pottery appears later in this Chapter in conclusion.

FABRIC TYPES

Type BI

This ware basically is the same as the Zubaidah ware but the clay of this type is brownish-red fired hard with pinkish-brown core; the surfaces are eroded; hand-made; only one example found so far; uncoated but decorated. This type occurs in Jar-type 9a.

Type BII

This ware is similar to the chaff tempered ware of Zubaidah but the clay is pinkish buff and fired in a reducing atmosphere, only slipped on both sides in light pinkish buff. This type occurs only in Bowl-type 3g.

Type BIV

Basically, this ware is similar to ware BII, but is tempered only with small grits; it is probably the most common type. All the pottery of this ware is wheel-made except for a few hand-made examples. It seems, here again, that all the small vessels are made from one piece of clay except for the ring-based vessels. All the pottery is hard and fired in an oxidizing atmosphere in one colour throughout, chiefly in grey, the other colours ranging from pink to pinkish-red to red.

A sample of this ware type BII (B4-520 PI.PJ) was analysed and showed an orange-red matrix of clay in the thin section, and contained much silt sire and less large size quartz, ranging from 0.05 - 0.2mm. Two or three pieces of hornblende also occur with some reaction rims.

The majority of the vessels of this ware are slipped on the inner surface and up to the rim and down to about 2 cms on the outer surface, mostly in red on red or black on grey. Some examples are slipped on both sides in one colour, chiefly in red, cream or white or pinkish buff.

Some examples are coated in a wash, chiefly in cream or white, and mostly on the outer surface only.

Some examples, especially the painted bowls, are burnished but only on the inner surface; they are not polished over the whole surface, but in radial lines outward from the centre of the bowl. The common decoration in this type is painting (but without patterns) on the inner surface only, and up to the rim and down to about two to three cms on outside, either in deep red on a pinkish-yellow, or yellow, or white ground, or in black on grey. Other decorations are horizontal straight lines or groves below the rim, but these are less common in this type.

Ware IV occurs in the:-

Bowl-types 3a, e, f, g, 4e, 9a and d, 10a and 12c.

Jar-types 1, 13, 20.

Base-types 6 and 7.

Handle-types 2.

Type BV

This ware is basically the same as ware IV but has some larger grits; it is not a common type, in fact very rare. Only one example is found; it is uncoated and occurs in Jar-type I.

Type C

This ware is divided into ware Type CI and CII.

Type CI

This type in general a pinkish buff to red in colour. All the examples are fine bowls with thin walls and are wheel-made. These were fired in an oxidizing atmosphere. Some examples are decorated in deep red paint on the inside only, and mostly in horizontal straight incised lines, and one example is decorated with two applied horizontal ridges. This type occurs in Bowl-types 3a, 9d and 14a.

Type CII

This ware is red and well fired in an oxidizing atmosphere in red or brown. All examples have a slip on both surfaces in red, cream and brown, and all are wheel-made bowls, but slightly thicker than the CI type. This type (CII) occurs in Bowl-types 2, 19b and 21b.

Type D

This ware is basically sandy ware, and is again divided into two sub-types:

Type DI

The clay of this ware includes sand and chaff. This ware is very rare, and found only in two examples of Bowl-types 8b and 12a. A sample (BIV) of Bowl 8b has been petrographically analysed by thinning the section, and it showed much quartz of sub-angular and sub-rounded sides, ranging from 0.05-05 mm, and weakly birefringent, in the red matrix of the streaked clay. It also showed that the clay includes some flakes of iron ranging from 0.02 to 0.1 mm, with some reaction rims, ranging from 0.1-0.3 mm (PLCXXIV No.a). The clay of this type DI is fired in orange-red and cream-yellow; one example is hard, but the other, 8b, is friable. Example 12a is decorated with grooves below the rim.

Type DII

This ware is probably more common than the other; the clay includes only sand, but with some grits. It is not certain whether these grits and the sand were included intentionally or occurred naturally in the clay. The colour ranges from red to dark red. In general, all the examples are well fired, chiefly in red but sometimes in grey throughout. They have all been slipped in red or black and coated with a white or cream wash. Except for one or two examples, all of them are decorated with grooves below the rim. This ware occurs in Bowl-types 16a, 18a, 19b, 19e; Jar-type 20 and Base-type 1.

Type F

This ware is basically cream or caramel coloured clay and is divided into two sub-types:

Type FI

This ware is glazed ware of fine, well levigated cream clay. It seems that glazed pottery was not uncommon at City V of Bahrain. The glaze was mainly in bluish-grey, white and green; there is one example of a brownish-yellow glaze. All the examples are wheel-made. Glazing is chiefly found in shallow bowls (Plate IX No. 85 Bowl-type 9f is an example of a shallow green-glazed bowl), but it is also found in some small jars or bottles (Plates XLIX No.98 Jar-types 28a, green glazed, 45 (Pl.LV No. 117), brownish glazed. . Some of the glazed examples are decorated in horizontal straight incised lines, and some are decorated with grooves below the rim and one example has an incised inscription. See Jar T45 (Plate LV No. 117).

This type occurs in

Bowl-types 9e, 9f and 10b

Jar-types 28a, 45 and 53

Base-types only Type 7

Type FII

This ware is also of cream-yellow clay, but without glazing. The clay in some examples includes some grits (small or large) and in others some chaff. It seems that all the examples are wheel-made except for examples, such as Base-type 22 (Plate LXVII No.75): perhaps this is hand-made, and so with some others. The surfaces of all the examples are in cream-yellow, perhaps having been smoothed with wet hand or having

been slipped in the same colour as the ware itself. All the examples are without decoration except for one which is decorated in horizontal straight incised lines. This type occurs in Bowl-type 4b, in Jar-type 3 and in Base-types 7, 10 and 22.

Note: Two samples of ware Type F have been petrographically analysed, one of ware FI glazed pottery (Sample B6 RN 520-02) and the other of Type FII (Sample B5 RN 520 P1). The clay of both samples is basically the same, a pale cream matrix with scattered quartz grits, ranging from 0.05 - 02 mm, sub-angular and sub-rounded. Both samples show scattered iron flakes ranging from 0.02 - 0.12, but Sample B5 also contains hornblende all less than 0.1 mm (rare), felspar and clynophrexene (also are rare). (See Plate CXXX No.a of Sample B5).

Type J

This ware is a black-glazed pottery of a very fine well levigated clay fired hard and in red or pinkish red. This black glaze, which has nothing in common with the other glazes previously mentioned and has a truly unique durability, is nothing else than a very pure clay mixed with an alkali, probably potash. The colour acquired by the vessel when fired (black, grey or orange) depended partly on the firing itself, which took place in three stages, but partly also on the degree of dilution of the glaze. The controlled exclusion or inclusion of smoke in the furnace, where the temperature never exceeded 950°, had a chemical action on the iron in the clay, and produced accordingly the black, grey or orange colour of the background. This clay, containing a good deal of iron, when subjected to the appropriate firing, was utilized to produce the well-known warm terracotta colour with its brillant and inimitable black glaze. [120] Incidentally, during his excavations at City V, Bibby

also found a piece of black glazed sherd decorated with a "roulette" pattern, of which he says very aptly "as though a toothed cylinder had been run over the surface before firing".[121] Only two examples of this type have been found, both of them small bowls of types 9c and 13a.

The Tempering Material

Broadly speaking, it can be said that the tempering materials used in the pottery of City V at Qal at al-Bahrain are as follows:

Chaff

Unlike the practice at Zubaidah, the use of chaff was rare here and is found in very few examples; perhaps then chaff was not a favourite material as a temper.

Mixed Temper

This type of temper is mixed grits, probably from different rocks. The use of grits as the tempering material was probably common at this site, since the clay of a great number of the sherds includes grits of many different sizes, ranging from 0.05 - 0lmm.

Sandy Wares

Sandy wares also occur at this site, but, as has already been remarked, it is not yet certain whether the sand was added intentionally or occurred in the clay naturally, but unlike the rare Hajar Bin Humeid sandy wares, such wares are common here.

METHOD OF MANUFACTURE

The evidence suggests that most of the vessels of Bahrain City V were wheel-made, even the small jars and bottles, except for a few examples of small bowls and large storage jars, which were hand-made. All the small examples were probably made in one piece; but by way of

exception, the large storage jars were probably coil-made. The majority of the vessels have a simple rim, except for a few examples which have a thickened exterior or have a ridge on the inside; these were either folded outwards or pressed inwards by the fingers, without using any further clay during the shaping process.

Surface Finish

Six types of surface finish can be seen at City V.

Uncoated Wares

Uncoated wares are fewer in number than those with other types of finish; their surfaces probably never had a slip, but were simply smoothed by a wet hand during the final finishing before firing.

Slip

Most of the vessels are slipped either on the inside only or on both sides, chiefly in red, but also in black and cream, white, pinkish-red, orange, buff and brown. When the slip occurs on the inside only it is mostly in red or black.

Wash

Only a few examples have been noticed which bear a wash; where this occurs, it occurs particularly on the outer surface and chiefly in white or pale cream.

Burnish

Burnishing is found only in bowls. The bowls which were painted only on the inside in black, grey or red, were as a rule partially burnished, but they were not polished over the whole surface, but in radial lines outwards from the centre of the bowl.

Glaze

Glazing was probably not uncommon since some cracked glazed wares

were found among the other varieties. It was limited to bowls only, but is also found in some small jars and bottles; it has been discussed in Fabric-types FI.

Black Glaze

This type of surface finish has also been discussed under Type J.

Decoration

Three types of decoration can be seen in the City V pottery, namely, painting (but without designs), incised decoration and grooved decoration (but without ornamentation).

1. Painting

Painting is found in bowls only and is applied only to the inside and to about 1.2 cm down the outside; it has been discussed previously under F type BIV.

2. Incision

Very little incised decoration is found at this site, but we do now and then find the horizontal straight line or parallel lines below the rim. The other type of incision here is the "sawtooth" zigzag decoration regarded in fact by Bibby [122] as typical of Phase 2 (City V). Unfortunately, this type of decoration is not included by Bibby among those found on the published vessels from City V. nor has it been observed during a personal handling and observation of the excavated material at Mosgard, perhaps because most of this material was handed over to the Bahrain Museum.

3. Grooves

The third type of decoration to be observed at this site is the grooved decoration; it can be seen in many examples from this site. See Bowl-type 3g (Plate III No.26).

Note: Only one example of incised inscription is observed on the shoulder of a narrow-necked jar, Type 45 (Plate LV No.117).

Chronology

The chronology of City V of Qala'at al Bahrain is based on the black-glazed (Attic) pottery and dated to 330 BC. [122] Therefore all the associated pottery of City V is assigned to the early "Hellenistic" period.

CONCLUSION

One of the characteristic features of the City V pottery is the presence of small bowls, particularly shallow bowls with thin walls and fairly simple rims, such as that of Bowl-type 9f (Plate IX No.85). Another typical bowl-type is the open-mouthed deep bowl, with a short rim and with an edge pronounced interiorly, e.g. Bowl-type 19b and e. An outstanding feature of this pottery is the presence of small jars or bottles with narrow necks and two small round handles (Jar-type 28a) (Plate XLIX No.98). Very typical too of the pottery of this site (City V) are the bowls painted in deep red and black on the inside only and generally radially burnished; the fabric of such bowls is generally fine. So too, the "saw-tooth" (zigzag) design (as it suggested by Bibby) may be regarded as the typical incised decoration of City V.

But perhaps the most exciting feature of all this pottery is the presence of black-glazed sherds, which are now held to be imported. Glazing in bluish-grey, blue and green can also rightly be considered another of the main features of this pottery. In general, it can be said of the City V pottery that, except in a few cases, most of it is

very fine, in the shaping, tempering, firing and surface finishing. All of these crafts, taken together indicate a highly developed technique in the pottery industry in City V of Phase 2 at Qala-at al-Bahrain.

2. FAILAKA[123]

This is the second site of the Eastern Province of the Arabian Peninsula, a small island lying in the middle of the entrance to Kuwait Bay, about 20 kms off the mainland, and occupying a strategic position in relation to Kuwait, situated as it is on the trade route to Mesopotamia. (Figure 6). This island is remarkable for its ruins and burial mounds, very similar to those of Bahrain. Of these mounds two in the South-west corner of the island, known as the Sa'ad wa Sa'aid Tells are important for our purpose; these twin mounds (western and eastern) were excavated by the Danish Archaeological expedition and the results published.

Tell Sa'aid (Eastern Tell)

This tell is lower than the western one and is roughly rectangular in shape with defensive walling on its edge. On the southern edge are two grave mounds. The excavation of this site revealed several structures belonging to a temple and residential area, surrounded by fortification along the northern side. The outer face of these walls indicates that they were built of square blocks in the Greek style.

One of the most important finds at this site was a stone slab engraved in Greek inscriptions line after line giving the instructions issued to Anaxarchos by the Greek King regarding the foundation of this colony perhaps in Seleukos II period. This slab proved to be one of the crucial evidences for the dating of this site; it was found near the temple and had originally stood upright outside the main entrance.

There is a suggestion that perhaps these buildings were erected by Alexander the Great or by one of his successors. The other significant find is the Greek silver coins of the Syrian King Antiochus III period (223 - 187 BC), found near the temple, the figures and figurines, the wine-jar, handle-stamped with the trade mark of Rhodes, and the fragments of pottery.

The Reliability of the Pottery of the Greek Tell at Failaka

There can be no question that the Failaka pottery from the Greek Tell provides strong and reliable archaeological evidence for a chronology, because it came from a large excavation of a large site, and was associated with the building and occupation levels. The architecture of the buildings, and the site itself, can readily be recognized as Greek, on the basis of their style and structure, and of the associated coins, as well as on the basis of the stone slab engraved in Greek and on the basis of the stone slab perhaps the Greek temple was erected in 239 BC (See below the chronology in this Chapter). All these evidences, set forth in the chronology jointly confirm that this is a Hellenistic or late Greek site; hence the pottery associated with these buildings, coins and stone slab, comprising, as it does, various pottery types in the Hellenistic style, affords strong and reliable confirmatory evidence, because it is itself datable (see below the chronology). Another ground for the trustworthiness of this pottery is that the site of Failaka, like that of Bahrain, was admittedly an important commercial, religious and cultural centre throughout its long history, and had had long-standing communications with the other ancient civilised and semi-civilised sites, particularly in the Hellenistic era. This pottery will, however, prove even more

serviceable for comparative studies and for the dating of the Arabian pottery from the other sites, particularly the Zubaidah pottery.

The Pottery

All the pottery discussed below came from the excavation of the Greek Tell (Sa'aid) at Failaka. To a small extent, it has been handled and examined personally, and some samples of it have been petrographically analysed; but here the amount of pottery personally examined is fairly small, since the study of this pottery is in fact already being undertaken for a doctoral dissertation at Aarhus. However, the data ascertained from a personal examination are quite adequate for a comparative study and for a chronological dating of the pottery from other sites of the Arabian Peninsula.

Form Typology

Several Form-types are found at this site and are here classified on the basis of the major classifications of the Arabian pottery.

Bowl-types

There are sixteen major types and six sub-types at this site. All these types are closely similar to the major classificatory types (See Table 17 for a comparison), except for four types which are new. Bowl-type 9e (Plate IX No.84), 25, 28 (Plate XXI Nos. 188 and 191) and 30 (Plate XXII). For descriptions in detail see Form-list and catalogue.

Jar-types

Ten major types and one sub-type have been found at the Greek Tell (Sa'aid), of Failaka; see Table 18 for a comparison with the other sites of the Arabian Peninsula. All the Jar-types of this site are similar

to the major ones of the Arabian Peninsula, except for Type 22 which is new, see Plate XLVII No.90. For descriptions in detail see Form-list and Catalogue.

Base-types

Only two types have been observed at this site, Type 6, a slightly concave base, and Type 7, a low ring base. See Table 19. A more discussion of the form typology of Failaka pottery appears below in this Chapter in Conclusion.

Fabric Types

The fabric of the Greek Tell pottery of Failaka has been classified on the basis of the temper into four major types: B, C, D and F, each of which has also been sub-typed as follows:

Type B

This type is divided into three sub-types on the basis of the tempering material, but otherwise all three are the same and have undergone the same technique. The clay of Type B is all medium-fine but whereas the clay of Type B1 is well levigated and that of Type BIV fairly well levigated, that of BV is badly levigated. The vessels of Type B were in the main well fired in an oxidising atmosphere, except for a few examples which have a black or grey core; the vessels were fired chiefly in pinkish-buff or red, brownish red, and brownish grey colour.

Type B1

The clay here is tempered with chaff but it seems that the use of chaff as a tempering material was perhaps not common at this site for only a few examples have been noticed. The type occurs in Bowl-types 4c and 52, also in Jar-type 6a.

Type BIV

The clay of this ware includes small grits, perhaps as the tempering material. A sample (F1) of Bowl-type 9 (Pl. 14) (Hy No.131) has been analysed petrographically by thin-section. It shows a fine clay of a yellowish-pinkish-red matrix, with sub-angular and sub-rounded fragments of quartz ranging from silt-size to 0.1mm; it also contains some calcite, two pieces of biotite and some iron. It seems likely that this type (BIV) was common at this site. It occurs in Bowl-types 8a, 9a, 16a and 22, also in Jar-types 1b and 12a.

Type BV

The clay of this ware includes coarse large grits. Perhaps it is a rare type, as it occurs only in Bowl-type 25 - since all three sub-types of Type B underwent the same technique, they are all treated and discussed as one unit, see below the general description of ware B.

The majority of the vessels of ware B are wheel-made, but a few are hand made, particularly some large jars and some bowls.

Most of the examples have a slip on both sides, chiefly in pinkish-red and yellowish-cream. Some too have a red and dark grey slip, but fewer. There may be some examples that have been washed, particularly in pinkish or pale yellow on the outer surface. A small number of the vessels are uncoated, that is their surfaces have no slip ahd have simply been smoothed in wet-hand.

Most of the examples have no decoration of any sort, except for a few which have an incised decoration consisting only of horizontal straight lines below the rim. Some examples of this Type B are decorated with grooves.

Type C

The clay of this ware is very fine to fairly fine, and generally

well levigated. All the examples are hard and well fired in an oxidising atmosphere, chiefly in pinkish red or brown colour. This ware C is divided into two sub-types on the basis of the quality of the grains.

Type C1

The clay is very fine and occurs in Bowl-type 9e and Base-type 7 only.

Type C11

The clay is less fine than that of C1 and occurs in Bowl-types 4d, 9c and 11a. A sample F4 of this type has been analysed petrographically; the clay itself is fired in high red but in the thin section the matrix of the clay looks like opaque cream with much quartz, the grits ranging from silt-size to 0.1mm, and also with some very fine calcite particles (Plate CXXII No.a). All the examples of Type C are wheel-made. They mostly have a slip on both sides in pale cream, yellowish cream, grey, buff and brown, but some have a slip only on the outside, chiefly in pinkish yellow. A few have a wash in yellow-buff on a background of pinkish buff, only on the outer surface, up to the rim and down to 1-2cms on the inner surface.

Type D

The clay of this ware is sandy and red, pinkish buff or pinkish cream in colour. Most of the examples are hard and were fired in an oxidising atmosphere, chiefly in pinkish buff throughout, but some in red and brown. A very few have a black core; some have dark patches due to insufficient firing. This type is again divided into two sub-types.

Type D1

The clay of this ware is tempered with chaff and probably with

sand. The result of petrographical analysis shows the cream-coloured sandy and opaque matrix to be mixed with some surnt chaff; it also shows much quartz in large-sized grits of sub-angular and sub-rounded sieds, as well as some pieces of biotite. This type occurs only in Jar-type 4, and is perhaps one of the less common types at this site.

Type D11

This ware is basically the same as D1 but without chaff; the sandy clay likewise containing some large grits. A sample of this type has also been analysed and shows a clay matrix similar to that of sample F1 Type D1. This type occurs in Bowl-types 13a, 13b, 19a, 19d, 21 and 30 and Jar-types 2a and 11a. It seems that this type was more common at this site. All the techniques undergone by both sub-types (D1 and D11) are similar, so all the examples of both sub-types are here treated as one unit. The majority of the examples are wheel-made except for the storage jars.

Surface Finish

All the examples of wares D1 and D11 show a slip, either on both surfaces or on the outer surfaces only, chiefly in brown or white, but some also have a wash over the slip in white, pale cream or yellowish cream.

Most of the examples of these wares D1 and D11 are decorated, but only with a horizontal incised line below the rim.

Type F

The clay of this ware is in pale cream, yellowish cream and greenish cream colours; this type is once more divided into two sub-types.

Type F1

The clay of this ware is fine and well levigated. A sample (F2)

has been analysed and shows that the clay matrix is birefringent and of opaque cream colour. The clay contains much quartz, ranging from silt-size to 0.1mm. It also contains iron oxide up to 0.05mm, a piece of white mica and some fragments of biotite. (Plate CXXIII No.b) All the examples of this type are glazed in white, cream and yellow, either on the outer or on both surfaces, and so it seems that glazing was common at this site. This ware occurs in Bowl-type 18a, Jar-type 22 and Base-type 7. All the examples of this type are wheel-made, hard and well fired. Most of the examples have horizontal straight incised lines, single or double, below the rim, and some are decorated with deep grooves below the rim or near the base.

Type F11

This ware is also of pale cream coloured clay, sometimes fine but sometimes with large grits, perhaps added as the tempering material. A few examples are also tempered with chaff. A sample (F3) of this type has been analysed and shows the same result as sample (F2) of Type F1, with the exception that sample F3 also has chaff as a tempering material. All the examples of this type are wheel-made, except for a very few which are hand-made. All of them were well fired in an oxidising atmosphere and most of them hard, with a few exceptions. This ware occurs in Bowl-types 10a, 11a, 25 and 28 and Jar-types 2a, 10, 13a and 21b; it also occurs in Base-types 6 and 7. Perhaps this is also one of the common wares at this site.

Most of these examples have a slip of the same colour as the firing, i.e. pale cream or greenish cream; some are uncoated, i.e. have no slip, but their surfaces have been wet-smoothed.

Most of the examples are decorated with horizontal straight incised lines or with grooves below the rim, but at least one example has been

decorated with thumb-nail impressions on the shoulder.

General Remarks on the Fabric of the Greek Tell Pottery

The clay of the Greek Tell pottery is, in general, well levigated, and is chiefly in red, pinkish red, pinkish cream or pale cream. Most of the pottery contains calcite or is calcareous. All the vessels are well fired throughout in one colour, except for a few examples which have a black or grey core. It is very probable that three types of tempering material have been used in the clay at this site, namely, chaff grits, and sand. Chaff was perhaps not commonly used, because it is observed only in a very few examples. The other temper used at this site was clearly crushed grits, probably more common than chaff. The sandy ware is the third type; but in fact it is not at all certain whether the sand was added to the clay intentionally or was present naturally in the clay.

Method of Manufacture

The majority of the vessels were wheel-made, except for a few hand-made examples. The exteriorly thickened rims of the small vessels were probably simply everted (folded outwards) without any addition of clay (See Plate XXI No. 191) and (Plate XXII No.192); but on the other hand, therims of the heavy jars (See Plate XLVII No.90) were probably thickened by the addition of clay.

SURFACE FINISH

Four types of surface finish occur at the Greek Tell at Failaka, as follows:

Slip

The majority of the vessels have a slip on both sides, or sometimes only on the outer side and down to 1-2 cms on the inside, chiefly in cream, the other (and rarer) colours ranging from pinkish red through red to dark red, brown and, rarely grey and white.

Wash

Only a few vessels have a wash over the slip, chiefly in cream or white.

Uncoated

Only a very few vessels are uncoated, i.e. have no slip or wash, but whose surfaces have been wet-smoothed by an object or a hand.

Glaze

A number of glazed wares, has has been remarked, have been noticed at this site - for particulars see Type F1 p.288-9

DECORATION

The most common type of decoration at this site is the incision of horizontal straight lines or parallel lines below the rim and near the base. Another type, probably not so common, is the thumbnail impression. By way of contrast some vessels are decorated with grooves on the outer surface. Yet another type of decoration is the painted or washed band of 1-2 cms width below the rim and on the inner surface, and chiefly in cream.

CHRONOLOGY

The Dating Methods of Tell Sa'aid

Not only have the settlement and the temple of the Eastern Tell been assigned to a Hellenistic date, but they have been shown to be actually Greek and of the time of Alexander the Great and his successors,

chiefly on the basis of the Greek coins and the inscriptions engraved on the stone slab of the temple; they are dated to the Hellenistic period also on the firm basis of the architecture of the temple. Known as the "Soteira Temple", it is virtually as Greek as the Parthenon itself, since the style and workmanship of the building are the same as those of that celebrated Greek temple.

The Inscriptions of the Ikaros stele

The slab found near the Soteira Temple is engraved in Greek characters forming a letter to the Ikaros people from the king with his instructions for the foundation of the colony; the name of the king is not mentioned, but, on the basis of the script, the inscriptions have been assigned to the second half of the third century BC or the first half of the second century BC.[124] It may therefore be asserted with confidence that the temple was erected in 239 BC and that the king who gave the instructions could well be Seleukos II Kallinikos.[125]

Coins

A hoard of 13 Greek silver coins has been discovered near the Temple of Soteira, minted by the Syrian King Antiochus III, who ruled the Seleucid Empire from 223-187 BC. The obverse of one of these coins shows Antiochus III as a very young man, so this particular coin has been assigned to the beginning of his reign, about 223-212 BC; hence the date of its burial, and with it probably that of the whole hoard, is about 210-200 BC.[126] Some coins from Failaka are crude in style, the die cutter having probably not been familiar with Greek script; and these too were probably not locally struck; because Failaka, according to the Antiochus III coin, was already under Seleucid administration. Otta Markholm Kuml,[126] suggests that, perhaps they were minted in Gerrha'a opposite Bahrain, in view of the fact that the

Gerrha'eans at that time (Hellenistic period) were the leading traders in Eastern Arabia, and their trade routes certainly ran via Failaka [127] from Gerrha'a to the estuaries of the Euphrates and the Tigris.

Another object of dating is a wine-jar handle, stamped with the vintner's name in Greek, and interestingly enough, with the rose which was the trade mark of Rhodes; the date of this jar has been assigned to the third century BC, the very period when the Seleucids ruled the whole vast sweep of territory, from Syria through Mesopotamia and Persia to India. [128] Apparently then, Failaka in the third century BC was in every respect a Seleucid colony, and its Temple of Soteira was the religious, cultural and administrative centre.

CONCLUSION

The most common feature of the Form-types is the small shallow bowls with simple rims or with rims thickened exteriorly or interiorly, and with the low ring-base or slightly concave base. Such bowls, so typical of the Hellenistic period, are Bowl-types 4c, 4d, 9a, 9c, 10a and 11a. Most of the jars have a long narrow neck with an exteriorly thickened rim or thick rounded rim, and most are of the sandy temper, Type DII. Very characteristic again of the pottery of this site is the presence of lamps in Greek style and earthenware pilgrimage bottles. [129] The most common Fabric-type is surely the sandy D11 and Type F11 of creamy clay. The most widespread type of decoration is the incision of the straight horizontal lines, the other type of decoration which is less common than incision is the painting on outer surface and down to about 1-2 cms on inner surface mostly in cream paint. The common feature of the surface finish here is the glazing.

3. THE EASTERN PROVINCE OF SAUDI ARABIA

This region occupies a large area of the eastern part of Saudi Arabia. (Figures 1 and 6).

The coastal strip of this region is low with relatively plentiful water. The shore is sandy with sabkhas (salt flats) occurring in depressions of the ground. The other main features of the region are sandy plains from Jubail to Kuwait Bay, drifting sand and dunes from Jubail southward, a great belt of sand known as the Ad-Dahna and a rock plateau with a sandy limestone bed called the Summan.

This region in general has a long hot summer and a relatively mild short winder; humidity is unusually high in the summer. Unlike the South-west Province, rainfall here is scanty. A similarity with the Northern and Central Provinces is the presence of sedimentary rocks. These rocks are represented by sandstone or limestone which hold a considerable amount of water in the ground.

Unlike many other parts of Arabia however, it is endowed with abundant and copious supplies of water by means of permanent springs and flowing artesian wells. This is particularly true in the principal area of oases such as Hafuf and Qatif. Many ancient wells have been found in this province in places such as Ain Jawan, al Hinna Ain Dar and Fuda.

The Oases of Hafuf and Qatif are in the fertile areas of the province, the particular area in which Hafuf is situated, Hasa, being known for its magnificent gardens. The agriculture here, unlike that of the South-west Province, is based on irrigation by wells and streams. Farmers have always worked the ground in these oases, growing dates, squash, watermelon and the long, thin cucumber. Nowadays the farmers gather crops of beans and peas, maize, carrots, cauliflower and celery,

and a poultry industry thrives providing eggs and chickens for both the Eastern and Central Provinces.

The Ancient Sites

During the survey carried out by the Department of Antiquities and Museums of Saudi Arabia a great number of archaeological sites were discovered in different areas of the Eastern Province, both along the coastal line of the Arabian Gulf and inland. (Figure 6).

These sites are of different periods but in this paper only those sites believed to be Hellenistic will be discussed. Some of these sites have local names, others have none. During the survey all the sites discovered were given numbers and can be located on the map, Figure 1.

Some of these sites have great significance because of their size and visible remains, but most of them are small with no remains or traces of structures. Only a few areas were known as major concentrations of settlement, such as town of Thaj and neighbouring Al-Hinna (208-203), Ain Jawan (208-129) and their surrounding sites, and a sizeable community around Fuda (208-242).

Soundings were taken at some of these sites such as Thaj, Ain Jawān, Site 208-91 south of Dharan Airport, Site 208-95, also south of Dharan Airport, and Site 208-102 (Ras al-Qurayya).

The site of Thaj, to judge by its size, fortification and pottery would seem to be the most important in the Eastern Province. As the pottery of this site has been dated, this site and its pottery will be discussed in some detail, separately, and will be considered to be the key to the other sites of the province. The other sites mentioned above will be discussed briefly because of lack of information, and the remaining sites of the Eastern Province will simply be referred to by

by their names or numbers without comment.

The pottery of the Eastern Province, either yielded from the soundings or collected from the surface (except that of Thaj pottery), will be treated and discussed as one unit, using the Thaj pottery as a basis. The reason for this is that firstly most of the pottery assumed to be Hellenistic is homogeneous in shape and perhaps in fabric, and secondly that although there are a great number of Hellenistic sites there is not much pottery and that mostly from surface collection, and also some of the pottery yielded from soundings of Site 208-91C is mixed with Islamic pottery.[131]

THAJ[132]

Location and Description of the Site

This site is located to the north-west of the oasis of Qatif, 70 kms west of the coast of the Arabian Gulf and about 80 kms west of Jubail. It lies in the area of Dikaka; wind-blown, with limestone hills. The site itself occupies a shallow valley running northward to a moderately large sabkha (salt flat) about a mile in diameter. In the northern sabkha are several groves of palm trees and a small modern village of half-ruined stone houses lies there.

Around the village lie the impressive ruins of a large walled city, which proved to be quadrilateral in shape and over half a mile across. The wall has a total length of 2,545 metres and is 4.4 metres thick. At the south-east and south-west corners are square towers. Within the walled area there are traces of houses but no detailed town plan could be distinguished. The city wall is built of squared blocks of limestone, and the houses are of clean cut stone with sharply rectangular corners, suggesting a prosperous and well-built municipality.[133]

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South-east on the outside of the city are the remains of houses of the same fine masonry construction. West of this suburb are two very large stone-built tanks and channels. The area to the south and west of this residential area appears to have been used as a cemetery only. Several tumuli, graves, mounds and circles occur which seem to be of artificial origin.

The whole area is covered with potsherds, fragments of steatite and alabaster, also fragments of small terracotta figurines, animal and human. Also found in the cemetery area were black, glazed (Attic) pottery sherds.

The Archaeological Works

The Islamic history of this site has been given in detail by James Mandeville [134] also showing that in late pre-Islamic times Thaj was known then as an ancient and ruined city. It appears that this site was first brought to the attention of Europeans in 1865 and first visited by Captain W.H.I. Shakespeare in 1911. He recorded two grave inscriptions in South Arabian script which were later published by Colonel Dickson and then published (Ryckmans 1937). Some pottery collected by Dickson, Mandeville and Paul Lapp has been discussed by Lapp in 1963; who ascribes it to late first to mid-third centuries A.D., and by Peter Parr (Parr 1964) who disagrees to some extent with the evidence for this date. [135]

This site was also visited by a Danish Archaeological Expedition in 1962 and 1964 and again in 1968, so that all the area of the site has now been reconnoitred.

The Sounding

During the reconnaissance of the site a square sondage of 2 x 2

the ruins, the mounds and the great bulk of the pottery all indicate a large and prosperous town or centre, perhaps existing during the period of the glory of Gerrha'a.

Another reason for the reliability of its pottery is that the part yielded by the excavation was associated with those building and occupation levels which are believed to be of long duration. But most meaningful of all, surely, for its reliability, is the find of the datable imported black-glazed pottery, designated early Hellenistic; indeed, this site comprises many pottery types in the Hellenistic style. The whole of the pottery is uniform and homogeneous, vertically and horizontally, including the surface pottery.

From all the above considerations, it seems clear that the pottery of this site has a quite exceptional chronological and cultural significance. Many aspects of the Thaj pottery can be usefully paralleled with those found at other Arabian sites, and can be dated on the basis of such comparisons, particularly the Zubaidah pottery of phases 2 and 3.

The Pottery

The pottery which was collected from the surface and from the sondages showed no significant variation: it was identical throughout and there was complete uniformity. All the pottery from sondage and surface collection is therefore treated and discussed as one unit and classified on the basis of the Zubaidah Form-types.

Form Typology

Bowl-types (Table 14)

The bowls of Thaj are classified basically into 29 types, and sub-

THAJ

BOWL TYPES

Level	1	2		3			4	6			8		9			11	12	13			19			20	21	23	35	57	58	
	a	b	c	a	b	c	c	a	b	c	a	b	a	c	d	a	a	a	b	c	a	b	e	a	b	a				
1			×	×			×				×		×	×							×		×							×
2			×	×			×				×	×	×	×							×		×							×
3			×	×			×				×	×	×	×							×		×			×				×
4			×	×			×	×			×	×	×	×							×		×							×
5			×				×				×	×	×	×							×		×							×
6				×			×						×	×							×									×
*sfc	×	×	×		×	×	×	×	×	×		×	×	×	×	×	×	×	×	×	×	×		×	×	×	×	×	×	

*sfc = surface

Table(14) Occurance of Bowl Types by Level

	a - Jar												b_Base						d Hand		
Level	2	3	4	6	9	10	11	25	28	29	57		1	2	3	6	7	8	1	1	1
	a				d		a		b												
1			×	×		×	×			×										×	
2			×	×		×	×			×											
3			×	×		×	×			×											
4			×	×		×	×			×											
5			×	×		×	×			×									×		
6			×	×		×	×			×	×										
16						×				×										×	
*sf	×	×	×		×	×		×	×				×	×	×	×	×	×			×

Table (15) Occurance of Jar Base Handle Incense burner Types and Token or Counter by level

Level	a FABRIC TYPES							b SURFACE FINISH								c DECORATION													
	B			C	D	E	F		J	Plain		Slip		wash	Burnish	Glaze	Black Glaze	Painting		Appld-ridge	Incision								
	II	IV	V	I	II		I	II													Straight-horizontal line	Sawtooth	Inscription	Hatched Triangle	Impressed Circular Dots			
										o/s	b/s	c/s	b/s	y	i/s			s	pb										
1		×	×	×	×		×				×		×	×		×				×	×	×							
2		×	×	×	×		×				×		×	×		×				×	×	×							
3		×	×	×	×		×				×		×	×		×				×	×	×							
4		×	×	×	×		×				×		×	×		×				×	×	×							
5		×	×	×	×		×				×		×	×		×				×	×	×							
6		×	×	×	×		×	×			×		×	×		×				×	×								
16			×					×			×			×								×							
*sfc	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×

*b/s = both side ♠pb = painted band
•o/s = out side
ˇi/n = in side

Table 16. Occurance of Fabric Types Decoration and Surface Finish by level

types.

Types 13c (Pl. XIII), 52 (Pl. XXXI), 57 and 58 (Pl. XXXII) and 62 (Pl. XXXIII No.233). See also Table 17 of the Bowl types of the Arabian Peninsula.

Jar-Types (Table 15a)

There are eleven jar types at Thaj;

Types 9d, (Pl. XLII), 25 (Pl.XLVIII) and 28b (Pl. L) and 57 (Pl. LIX No. 131) are new types. See Table 18 of the Jar Types of the Arabian Peninsula.

Base-Types (Table 15b) and (Table 19)

There are six Base-types at Thaj but no new type.

Handle-type 1 only (Table 15b and Table 19).

Incense Burner - Type 1 (Table 15b)

A more description of form typology of Thaj pottery appears later in this Chapter in the Thaj Chronology.

FABRIC TYPES (Table 16a)

Type BII

This type ware contains some chaff and small size grits as the tempering material. This type is in fact very rare. Perhaps chaff was not commonly used at Thaj as only two or three body sherds have been found on the surface of the site. The clay of this type is red or grey. A sample (T5 of a body sherd), has been petrographically analysed by thinning the section. It showed dense matrix of a reddish brown and black clay (reduced black core, reddish brown firing), with some holes of burnt chaff and reaction rims. It also showed a few inclusions. Predominantly the quartz, sub-rounded sub-angular, with a max. size of 2 mm, and on occasion with undudose extension indicating

metromorphic origin. Very rarely plagioclase and microcline felspars of the same size range as the quartz are found. The inclusions in this section appear to be deliberately added. (See Pl. CXIX No.b).

Type BIV

This is similar to ware BII but has no chaff, only small grits as the tempering material. The clay of the type basically is red or brown in colour. It is fairly well levigated. It is fired basically in an oxidising atmosphere but there are some examples which have a thin grey core with red or brown firing, and some which are fired grey throughout. Most of the examples are fired hard, chiefly in red or reddish grey, ranging from pinkish red, through red to reddish brown or pinkish buff.

This ware occurs in:

Bowl-types - 3c, 4c, 9a and 52

Jar-types - 3, 4, 6, 25 and 29

Base-type - 1

Incised Burner Type - 1

Most of the examples have a slip on both sides, but some have different colours on each surface. Usually the slip is pinkish-buff to red, or a cream colour. Two or three examples have a red strip of burnishing on the inside only.

Most of the examples of this type are decorated in incised horizontal lines or saw tooth patterns, and a few of them are painted (see below under Decoration in this Chapter).

Type BV

This is similar to ware IV but has larger grits. All other techniques are as ware IV..

This ware occurs in:

Bowl-type - 19

Jar-type - 57

Base-type - 3, 6 and 7

Most of the examples are fired red or grey. The only decoration which occurs is the incised horizontal line decoration.

Type CI

The clay of this ware is very fine and very well levigated. All examples of this type are thin and well fired in an oxidising atmosphere, chiefly red in colour, but ranging from light red to reddish buff and light brown to greyish brown. Some sherds are fired grey throughout.

This ware occurs in the small, shallow thin-walled bowls with simple or slightly exteriorly thickened rims of Bowl-types 4c, 9c and 13b.

All examples have a slip on both sides either in the same or different colours. Some examples have a red slip probably burnished on the inside, at the rim and below the rim down to 1 cm on the outer surface.

Incised decoration of horizontal lines is common but saw tooth decoration is rare. Plain painting is also found in red and black. A sample (T.2) of this type has been petrographically analysed and showed orange matrix, weakly birefringent, contains coarse silt size quartz, black pieces of iron and iron oxid microcrystaline clinopyroxene, and some scattered calcite (see Pl. CXXI No.b).

Type D II

This ware is of sand-tempered clay with some large grits. The clay is probably not well levigated. The colour of the clay is orange-red to orange-brown. It is fired in an oxidising atmosphere to these colours, also ranging from orange to red to reddish brown to dark brown, yellowish cream and grey. The examples are well-fired and hard.

A sample of this type has been petrographically analysed by thinning the section (Sample 14), which showed some coarse or angular fractions of

sand grits, yellowish grey matrix of clay, much quartz ranging from 0.05 to 0.8 which are sub-angular and sub-rounded, with much iron (PL.CXXIII No.b).

Because this type was more commonly found at Thaj it occurs in many different Form-types:

Bowl-types - 3a, 6a.c, 9a.c., 19b, 20a, 21b and Type 52

Jar-types - 2, 6, 10 and 11a

Base-types - Only one type occurs here Type 2.

Almost all the examples have a slip on the both sides except a few which have a slip only on the inside, at the rim and below it down to 1cm. on outer surface. The rest of the outer surface probably is washed in pale yellow or cream. A few examples have a slip in a different colour on either surface, e.g. black outside and grey inside. The most common colour for slip on both surfaces is red. Most of the examples of this type are coated in a yellowish cream or greenish cream wash on the outer surface, one example being coated in the inside only.

Incised straight horizontal lines are common, and one example in this type has applied decoration of this nature. Painting is rare and only one example occurs in this type.

Almost all the examples are wheel-made. Raised ridge or band is decorated by the addition of clay on the outer surface.

The tokens or counters (circular sherds) are of this Type DII.

Type E

This ware is also sandy but of a very fine clay and fine grits. Very few examples of this type were found; the clay is basically red in colour.

All the examples are well fired and hard in an oxidising atmosphere in red throughout. They were perhaps slipped in the same colour as the

firing, or more probably the surfaces were simply smoothed with a wet hand during the process of shaping. Only one example of this type is coated in a white wash.

All examples are decorated with horizontal incised lines. Only one is painted in red on the inside, at the rim and down to 1 cm. on the outside, with the rest of the outer surface probably coated in white wash. This type occurs only in Base-type 3 and in Bowl-types 3b and 13a.

Type F1

This ware is glazed and the clay is fine and well-levigated of a yellowish-cream or pale cream colour. All examples of this type are well-fired in an oxidising atmosphere. The glazing has been discussed under surface finish. Glazing occurs in Bowl-types 2, 8b and 9c and Handle-type 1.

A sample (Sample T8) of this type, of Bowl-type 8b, has been petrographically analysed and showed non-birefringent matrix of pale cream clay with some silt size quartz, much iron fleck and some biolite. (Pl. CXXVIII No.a).

Type F11

The clay of this ware is similar to that of Type F1 but without glazing. It contains many grits, sometimes quite large and also sometimes some chaff. The clay colour ranges from pale cream to greenish cream or yellow. This type is probably rare at Thaj.

All examples have a slip of the same colour as the ware itself or perhaps the surfaces were smoothed with a wet hand. The only decoration found in this type is of incised straight horizontal lines.

This type occurs in Bowl-types 3b and Jar-types 10 and 28b.

Type J

This type is referred to as Black Glazed ware (Attic). It has been discussed above in this Chapter with the Bahrain pottery under T.J, as both types are the same.

This ware occurs in Bowl-types 1, 8a, 9a, 13a and b, 57 and 58.

From the above classifications it can be said that the clay of the pre-Islamic pottery of Thaj commonly ranges from pinkish-red to reddish-brown, brown, pinkish-yellow and yellow. In general it is fairly well levigated except for a few examples. Occasionally the clay is very fine and well levigated.

Firing: All the pottery is apparently fired in an oxidising atmosphere, except for a very few examples which have a thin grey core or are grey throughout. The pottery is chiefly fired red throughout, ranging from light red to reddish orange and from reddish brown to brown or brownish grey, and also ranging from pale yellow to cream and greenish yellow. Almost all the pottery is hard and well fired, except for a few examples which are soft and friable.

Temper: The clay is tempered with differing materials but chiefly with sand. The majority of vessels are sandy but it is not clear whether the sand was added deliberately or there naturally. Some of the sherds have coarse sand probably added as temper. Some of the sandy ware has large grits but again it is not certain whether these occur naturally or whether the clay was not levigated well. Chaff is rarely included, so perhaps if chaff was not common then the potter at Thaj used sand instead. Mixed grits, long and small, also occur in Thaj pottery, but not as commonly as sand.

Method of Shaping

Thaj pottery is mainly wheel-made. The rounded rims for instance of Bowl-type 52[1] (Pl. XXXI) were formed in simple shape then rolled from the inside. This technique is also used in Jar-types 10 and 57 (Pl. LIX No.131). The pronounced thick ridged rim of the Bowl-types 19a and b was probably produced by finger pressure during turning. Most of the bases of Thaj vessels are flat or rounded; apparently body and bases were made from one piece of clay i.e. Bowl-type 62 (Pl. XXIII No.233).

Surface Finish (Table 16b)

Six types of surface treatment are found at Thaj; plain, slip, wash, burnishing, glazing and black glazing.

Plain (uncoated)

It seems that though this kind of surface treatment was less commonly found, it was found in all levels of the sounding, while a plain surface on one side occurred more commonly in the surface collection. Usually this type is painted in red or black on one side and the other side is simply smoothed without coating.

Slip

The application of slip on one or both sides was common. The slip usually fires red but can range from pinkish red to reddish brown through dark brown ro grey, sometimes yellowish white and cream and black colours.

The slip is chiefly applied in one colour on both sides of the vessels but sometimes the surfaces are different colours, for instance brown or grey inside and black outside, or red inside and cream outside.

Wash

Wash on one or both sides is commonly found, usually applied on

the slipped vessel after firing. The coat usually applied on the outer surface is a white or cream colour. The other wash colours range from yellow to greenish yellow, grey and black.

Burnishing

Another type of surface finish is that of burnish. Only a few red examples are found at Thaj, and these have been radially strip-burnished. Burnishing is found only in Bowl-types and is restricted to the inner surface. Perhaps this technique was not common at Thaj?

Glazing

It seems that glazing was common at Thaj. It was found in about 22% of all sherds at Thaj collected during the reconnaissance, and it occurs in nearly all levels of the sondage (see Table 16b). Most of the sherds were glazed both on the inside and outside and were of thin clay, but a few of thicker yellow clay were glazed on one side only. Glazing on both sides is found chiefly in the shallow bowls. The actual glazing in most of the examples had perished and the coloured wash below the glaze was reduced to a white powder. However, a few examples retained their original colour which was a lustrous greenish or light greenish shade.

Black Glazing

This black lustrous glazing is found in only a few sherds which are certainly from imports to Thaj, and are referred to as Attic ware and discussed under Bahrain Pottery. These sherds were found in the cemetery area. They are glazed all over and are made of very fine clay, and all were from plates or shallow bowls, (See Plates XXXII Nos. 228-9) Bowl-types 57 and 58. See also Bibby 1968 p.16.

Decoration

Three types of decoration were probably used at Thaj; incision, paint and applied ridge.

Incision

Incision was perhaps the most common form of decoration at Thaj. Most of the incised sherds were decorated with geometric patterns. Of these patterns by far the commonest (on half the incised specimens) was the "saw tooth" design - a close zigzag or curved lines. The other common pattern is of a straight horizontal single or double incised line usually below the rim or on the shoulder.

The other kind of incised decoration is found on the sides of incense burners in a pattern of hatched triangles. Ornamentation by means of circles of impressed dots is present on the human figurines found on the surface of the site.

Paint

Painted ware was rare. No patterned painted decoration was found at Thaj, only a few examples of plain painting, and these were mainly restricted to inner surfaces and at the rim, extending below the rim at about 1 cm. on the outer surface. Painting was mainly in dark red, sometimes in black, usually above a cream slip or above a grey ware. Painting only occurs in Bowl-types.

There is one example - Jar 25 (Pl. XLVIII) which has an inscription in black paint, but it is the only one found at Thaj.

Applied Ridge and Grooved

This type of decoration is rare at Thaj; only two examples of applied ridge around the shoulder have been found (Pl. XIII Bowl-type 13c). The other type of ridged decoration is found in Bowl-type 19a and b and Bowl-type 62 (Pl. XXXIII No.233), but there are many examples which

decorated with a groove below the rim.

Conclusion

Judging by Tables 14 and 15a of Bowl and Jar-types, it appears that there are more of the former than of the latter, and that the quantity of the bowls themselves is greater than that of the jars. The majority of the bowls are shallow and of a small size.

Table 14 of the Bowl-types shows that certain types of bowls are more common than others and occur in all levels such as:-

a) Bowl-type 4c - shallow bowl with exteriorly thickened rim.

b) Bowl-type 9d, exceptionally thin, flaring sides, inverted rim with small flat base, referred to as offering bowls, possibly having a religious function. This type is regarded as one of the most characteristic of Thaj pottery.

c) Types 19a and 19c. This is the only characteristic type of Thaj pottery which has a wide mouth, rounded grooved body, a rounded base and a short thick rim with a pronounced edge around the rim on the inside. These two types can probably be referred to as kitchen ware.

d) Type 62. Similar to type 19 but with a rounded rim. Can also be referred to as kitchen ware.

A singular feature in Thaj pottery is the Bowl type 52 (Pl. XXXI) a small bowl with interiorly rolled rim, occurring only in Level 3. Another characteristic bowl is wide open-mouthed large bowl Type 6c found only in the surface collection. The function of this large bowl, as has already been mentioned in discussion of the Zubaidah pottery, might have been in providing communal food.

The most characteristic Jar-type is Type 10, found in all levels.

However, Type 57 occurs only in Level 6 (Table 15a). Both types 10 and 57 are large, heavy storage jars perhaps used for storing grain.

Jar-type 25 is a unique jar with an inscription. Judging by Table 16a of the Fabric types, it would seem that chaff-tempered pottery (Type B1) is very rare and occurs only in the surface collection. The most common pottery is sand-tempered (Type DII) with some large grits, while fine sand-tempered pottery Type E is very rare. Fine cream ware with glazing is also most uncommon, but the most significant pottery found at Thaj is the Black-glazed hard pottery with very fine paint (Attic ware).

Table 16b of Surface Finish shows that slip on both sides was most usual particularly in a red or cream colour.

Glazing in white or light green was a popular finish, occurring in all levels, whilst burnishing is a rare technique, only in red and on the inner surface, at the rim and down to 1 cm. on the outer surface, and found only in the fine, thin bowls of Type C.

According to Table 16c of Decoration it appears that incision in saw tooth pattern was probably the most common design on Thaj pottery. On the other hand painting was rare, applied only on one side chiefly on the inner surface at the rim and down to 1cm. on the outer surface, mostly in red, black or grey on red or red on red ware, with a white or cream faced exterior. Painting was applied mostly on the fine thin ware of Type C.

Another notable feature among the Thaj finds were the small incense burners, made generally of clay but sometimes of steatite, of a square shape and ornamented with an incised pattern.

However the most interesting find at Thaj were the fragments of terracotta figurines of humans, mostly females and animals, chiefly

camels. The presence of such a large number of these female figurines and the uniformity of their manufacture in terracotta is interpreted by Bibby [137] to mean that they represent a goddess widely worshipped in Thaj, and that probably each house had a shrine group consisting of a figure of the goddess, one or more camels and an incense burner.

The Chronology of the Thaj Pottery

The chronology of the Thaj pottery site may be established on the basis of the pottery. Thus, while Paul Lapp [138] provisionally ascribes it to the late first to mid-third century AD, Peter Parr [139] finds himself in disagreement in some degree with the former's evidences for this date range. More specifically, a fragment of a handle, probably of an amphora, was found at Thaj, stamped with the Rhodes stamp and with the potter's name "Diogenes" and from this stamp and this name, P.J. Riis [140] has dated the site from third century BC. The date range for the pottery suggested by Bibby, [141] roughly 300 BC to 100 AD, rests on the basis of the presence of burnished rouletted ware and of the resemblance of the bowls, particularly the radially burnished red and black-painted bowls, to those of the City V levels at Qala'at al-Bahrain and of the "Greek" Tell on Failaka. He also suggests a central date for Thaj itself in the earliest half of the period 300-100 BC, on the basis of the black-glazed (Attic) ware and the conspicuous absence of Roman or Nabataean wares; and on the basis of the unity of the pottery throughout all the levels from first to last, he further suggests that Thaj had but one period of occupation, the Hellenistic one, and tha the Thaj pottery must, therefore, lie within this period. [142]

The pottery from Thaj, Failaka and City V levels at Qala'at al Bahrain has been handled and examined personally, and some samples petrographically analysed. The results of these tests showed certain similarities, particularly in the forms and the surface treatments and

sometimes in the fabrics; for example, there is great resemblence between the offering bowls, (Type 19d) the short thick and ridged-rimmed bowls (Types 19a and 19e) and the medium depth bowls with everted rims (Type 4e). The glazed wares in white, light blue, light green or bluish-grey are also very similar in each of the above mentioned sites, but the most characteristic resemblance is in the painting on the bowls, on the inside only, and to about one to two cm, down the outside, either in dark red or in black paint, on red, grey or cream. These painted bowls were all burnished radially outwards from the centre; they are usually small with curved sides, simple thin vertical or flaring rims (Type 9a) and sometimes are of fine Fabric (Type CI). There are also other resemblances for comparisons, see Tables 17 - 20.

The Greek Tell (Greek Temple) at Failaka is dated by Bibby[143] to the second half of the third century BC (239 BC) and the pottery associated with the Greek buildings all lies, according to him, within the Hellenistic period; he also dates City V levels at Qala at al-Bahrain from 330 BC, on the basis of the black-glazed pottery. And since the Thaj pottery bears a general resemblence not only to the pottery of the Greek Tell at Failaka, but also to the pottery of City V at Qala at al-Bahrain, in all likelihood it falls within the Hellenistic period and the date suggested by Bibby (300-100 BC) seems altogether reasonable.

The other ancient small sites of the Eastern Province of Saudi Arabia

As has been mentioned, hundreds of ancient sites of different periods and many lands have been recorded, including some of the Hellenistic period of the Near and Middle East. Most of the sites of this period have no great archaeological significance because they

have been almost totally destroyed, either by the elements or by human vandalism, and this continuously and throughout their history. Some of them are too small and others have no very impressive ruins or mounds; one must simply wait patiently until excavations have been carried out. However, there are a few such sites where surroundings have been made and have produced some excavated pottery but in small quantities, such as Ain Jawan (mound), site 208,95 south of Dhahran Airport (tumuli), and site 208,91 near Dhahran Airport; the pottery of this latter site, believed to be Hellenistic, but appears to be mixed up with a deposit of Islamic pottery. A word of explanation must be added. Because the pottery from all these Eastern Province sites is very similar, the quantity of pottery from the surroundings not great, and most of the pottery from the surface collection, it is all treated here as one unit. On account of their possessing for the most part no great archaeological value at the moment, descriptions of these sites are not given, with the exception of Ain Jawan; but their names (if they have one), or their numbers (if they have one) can be seen in the major tables of the Arabian Peninsula of the pottery types. Although all the pottery of all the sites is treated as one unit, but in the Tables all the types of each of these sites are shown separately in front of it, so that the reader may realise which pottery type or types occur in which site or sites.

Ain Jawan

Ain Jawan lies to the north west of Tarut Bay, only about three kilometers from he coast of the Arabian Gulf and near the Ras Tannura Refinery to the west. The site area, which is situated on the coast must from ancient times have enjoyed the advantages of being located on both possible sea and overland trade routes. Ain

Jawan is, to all intents and purposes, an "island", surrounded on all sides by Sabkha; geologically it is composed of stratified limestone and contains two sandy hills and two wells, one on each hill. Many dozens of small mounds can be seen varying from two to six feet in height, and a truly magnificent mound over 20 feet high and about 100 feet across. Dickson[144] visited and investigated these burial mounds, particularly the large one which had been dug out and looted. Afterwards more appropriate excavations were undertaken and further graves discovered adjacent to the excavation of the main tomb-chamber. According to Bowen[145], many artefactual materials and numerous cist graves were found in the limestone. The other mound was called The Pottery Mound by Bowen, because of the presence of a large amount of buried pottery. The nearby hinterland of Ain Jawan is made up of many small areas of various types.

Soundings

A sounding (C) on the top of the main mound had been made during the survey of the Department of Antiquities and Museum Riyad seven stratigraphic levels were yielded representing at least two different architectural phases and an earlier occupation surface[146]. Two other soundings, A and B, were also made, but no stratified material was obtained from these. Fortunately, Sounding C revealed more important cultural depositions; all the material from levels 1-6 of this sounding (C) referred to the Hellenistic period, but the material of level 7 is back dated by the researchers to the pre-Hellenistic period.

The Reliability of the Pottery of Ain Jawan and of the other small sites of the Eastern Province of Arabia

The pottery of Ain Jawan is certainly in some respects reliable for dating, but the evidence is relatively not as strong as that of the Thaj ware, since the site itself is small compared with the Thaj site; and in fact less important, because the archaeological data found at the surface are fewer than those of Thaj. What makes this pottery rather less reliable is the absence of the imported Black-Glazed pottery found at City V (Bahrain) and at Thaj; it cannot however be wholly rejected on this score because, after all, it came from the excavation associated with the occupation levels of the architectural phase. It is entirely in the Hellenistic style and comprises several pottery types which do have a chronological significance, as for instance the glazed pottery. This site, like Thaj, had perhaps the economic advantage of being on both sea and overland routes. In general, it can be claimed that the pottery of Aim Jawan can be useful for the chronology and the comparitive study of the pottery of the other sites in the Arabian Peninsula. As regards the pottery of the other sites of the Eastern Province, it seems that, unlike that of Thaj or even of Ain Jawan, it is not reliable, and perhaps has no real chronological significance at the present time, because of of it came from the surface collection. It can, however, be useful for comparisons with the pottery of the other Arabian sites, since most of the items mentioned in Table 17-19 are in the Hellenistic style.

The Pottery

The following discussion of the pottery of the eastern sites of Saudi Arabia is mainly indebted to the published report[147] but

also relies particularly for Gerrh'a and to a lesser degree Uqair, on on personal examination and observation. The published report, unhappily, supplies only very incomplete information and descriptions being in the form of very brief notes, particularly when dealing with the fabrics and the surface finishes. It has, accordingly, been no easy task to attempt to make a faithful classification of the fabrics and the surface finishes, in accordance with the system here adopted; nevertheless, the attempt has been made to classify the Fabric-types, but descriptions of the techniques employed must remain brief.

Form Typology

From the published pottery of the different periods, some forms believed to be of the Hellenistic period, and some forms personally examined, particularly from the Gerrhha'a site, have been chosen and classified on the basis of the Standard Typology of the Arabian Pottery.

Bowls

Fifty-five major and sub-types of Bowl have been classified from the material of the different sites, but the majority of the Bowl-types came from the sounding at the Ain Jawan site. Table 17 shows the distribution of the Bowls in each site; thirty-eight of these types (whether major or sub-types) are similar or fairly similar to the standard Bowl-types, while seventeen are new, to wit, 3c(Pl.II),3d.e.f(Pl.III),4d(Pl.IV),7bc(Pls.VI-VII),8c(Pl.VIII),11c.d.e (Pl.XI),15c(Pl.XVI),19d(Pl.XVIII),19e(Pl.XIX),26(Pl.XXI) and 29 (Pl.XXII).

Jars

The jars are fewer than the bowls and amount to twenty-eight

types (Table 18); nine of them are new, 2b.c(Pl.XXXVI),11b(Pl.XLIII), 19b,20 and 21(Pl.XLVII),23 and 24(Pl.XLVIII) and 27a(Pl.XLIX). For descriptions see Form-list and catalogue.

Bases

Seven Base-types have been classified, and these are 1,3,4,6,7, 10 and 12, Table 19. Type 20 is of a conical and unique shape, perhaps belonging to the Islamic period (Plate LXVI No.72).

Handles

Only one type of handle has been classified - Type 5 - a vertical strap-handle, sometimes longer, sometimes shorter; these handles are believed to be typical of the Hellenistic period.

Lids

Only one lid has been found at Gerrha'a of Type 1, concave on the inside and with a circular pronounced knob at the top of the outer surface. (Pl.LXX.No.1).

No Incense-burners are reported from this site.

FABRIC

It seems that the fabric here is very similar to that of the Thaj pottery; this judegment is made on the basis of a personal examination of some Uqair and Gerrha'a pottery and of the report on the Ain Jawan pottery made by Frederik R. Matson.[148] In general, it can be said that the texture of the clay of these East Arabian sites is finer, as a rule, but it also contains some rounded sand grains and grits. The paste was generally well fired, chiefly in an oxidising atmosphere, mostly in red and pinkish buff colour, but exceptionally in reddish brown, brown, yellow and cream-buff. For the most part, the vessels were fired hard, except for a few examples of glazed pottery.

Fabric Types

B: The basic texture of this ware is in fact not certain, whether of sandy marl, or medium fine, but on the basis of the size of the grits it is divided into:-

BIV: The clay of this type includes some small grits and the clay is perhaps medium-fine. The paste was generally fired in pink to pinkish-buff, the surfaces having been either coated with a slip of the same colour as the firing, or having been smoothed in wet; but there are a few examples which have a black or white slip on red on the outer surface only.

BV: The paste is the same as BIV, but it contains more large grits, so that this type can be fairly described as coarse pottery. The other techniques belonging to this type are the same as for BIV.

C: (Fine)

Probably this was a common type, as many sherds of this fine ware have been recorded. It can be divided into two sub-types on the basis of the grits, C1 being a very fine type, C11 also a fine type, but with some small grits. In other techniques both sub-types are alike. Some examples of this, type C, are uncoated, i.e. (have no slip) the surfaces however being smoothed in wet. The most common type of slip is red on red or on buff or pinkish buff, but a very few examples have a white slip on red on the outer surface only. This fine type, relatively to the other types, is a decorated type, but only in straight horizontal incised lines.

Type D11: (Sandy)

This is probably the most widespread type and is found at all the sites of the Eastern Province. The sherds comprise sand grains of different sizes, perhaps added as the tempering material. They

were generally fired in an oxidizing atmosphere but at Gerrha examples were fired in a reducing atmosphere, resulting in a black or grey core. Some examples are tan colour or red to buff, and others are grey sandstone-like wares. A sample (U.1) from Uqair of this type containing very small quartz and some rounded opaque iron (max 0.9mm, but averaging around 0.3mm), and some clay pellets, up to 1.7mm perhaps of calcareous clay (cream opaque clay. (Pl.CXXIV No.b).

Type F1:

This ware is a glazed pottery, the clay being usually pale yellow, cream or yellow buff, the texture fine and fired chiefly in an oxidizing atmosphere. Some examples were fired in grey to greenish yellow. Most of the sherds are glazed only on the exterior but a few have both surfaces glazed, the most common glaze being in green, olive and bluish green; and the bluish green glaze varies perceptably from a deep to a pale bluish green. In nearly all cases, the glazed surfaces have been dulled, pitted and partly removed through weathering. A great number of the glazed vessels have an incised decoration, such as the horizontal straight line, cross-hatching, "saw-tooth" and parallel diagonal lines.

Type F11:

The paste of this ware is very similar to that of F1, but it is not glazed, the surfaces being either smoothed in wet or coated with a slip or wash of the same colour as the firing, mainly in yellow or cream. The basic colour of the fired paste is chalky-cream-buff, yellowish-buff or greenish-buff, but sometimes grey to dull brown. Some of the examples are decorated in straight incised lines or in grooves below the rim. NOTE: Only one example of this type is tempered with chaff.

Type K: (Grog or crushed pottery)

The clay of this type has added grog (crushed previously fired pottery material) as a temper. This type is perhaps rare for it is found only at two sites, i.e. at Site 208-91 near Dhahran Airport and at site 208-229. The examples of this type were fired in an oxidizing atmosphere in red or yellowish-buff.

Miscellaneous

There are perhaps only two examples tempered with crushed shell at site 101.

From all the above it seems that three fabric types are common at the sites of the Eastern Province of Saudi Arabia, i.e. C (C1 and C11) D11 and F (F1 and F11). The most common material used as a temper is probably sand, but it is not at all certain whether this was added intentionally or was present naturally in the clay; so common is this temper that it is found even in Type F11. Type K is rare and found only at the two sites. The other temper, perhaps extremely rare, is crushed shell. See Table 20 for the distribution of the Fabric Types at these sites.

Surface Finish

Five types of surface finish can be seen at these sites. See Table 21 for the distribution of these types in each site.

Uncoated

A great number of the vessels are uncoated, i.e. not coated with a slip or wash, the surfaces simply having been smoothed in wet; but there are a few examples which have a coat on the outer surface but are uncoated on the inner surface. It seems that this latter type of surface treatment was common at most of these sites.

Slip

The application of a slip to both the inside and the outside or to the outside only, was a most common feature at all these sites. The most common colour was red on red or pinkish buff, in the case of the application of a slip to both sides, particularly in the Bowls, whereas those vessels, particularly the bowls that had a slip only on the outer surface were slipped on white or black on red or pinkish-buff while the inner surface was left in uncoated red or pinkish buff. There are also a few examples that have a chalky white slip. The other common colour of slip is yellowish buff or cream, while brown or reddish brown is rare. Slips in these colours are, however, not uncommon elsewhere.

Wash:

Perhaps this technique was not very common, only a very few examples having been found, in red, white or yellowish buff.

Burnish

This technique too is rare here, only one or two examples having been recorded, with vertical strokes on grey. This type is actually found at Ain Jawan.

Glaze:

In most sites, this is a very common surface treatment, a large number of glazed sherds having been found in different glazing colours. Only one example of a black-glazed pottery of fine grey ware is recorded at site 208.147, a type which is referred to as "Black-glazed Imitation Attic Black". Table 21 shows the distribution of surface finishes.

Decoration

Three types of decoration are found at these sites.

Applied (Table 21)

Basically this consists of raised bands, single or double, sometimes decorated with incised impressed circles. Another type is the knobs below the rim or pronounced edges on the outside or inside.

Incision:

This is the most common decoration and expresses itself in different designs. But the most common is straight or wavy horizontal incised lines, singular or multiple below the rim on the body. The other designs more or less popular at the various sites are "saw-tooth" impressed circular dots, vertical dashes, etc. (See Table 21 for the type of designs).

Painting

No painted designs are found at any of these sites, only simple painting all over, on the inside or outside; but the most common style is painting in red only on the inside. Another type of painting is painting in black on the bottom of a bowl.

Chronology of the Pottery of East Arabian Sites:

a. Ain Jawan

The chronology of this site also rests securely on the pottery, for the assemblage recovered from the sounding is remarkably uniform; there do not seem to be any wide divergencies between the pottery of any one level and that of any other, a fact which suggests a long and continuous occupation. Judging from this pottery and comparing it with that of other Hellenistic sites previously mentioned, most

of it shows a close similarity to that of the other sites. These similarities can readily be observed in the usual Form-Types, such as the Bowl-Types 4c, 9d, 19a, 19b, and 19c, and there can be little doubt that the most characteristic types recovered from the sounding at Ain Jawan are the clearly Hellenistic white-faced and red-faced wares, the red-on-red wares and the bowls painted on the inside only in the red on pinkish-buff wares. From these it can be assuredly concluded, that the whole span of occupation and the associated pottery fall within the Hellenistic period, but precise dates for the pottery of this site cannot safely be given at the moment. Miss Florence Day, with a wise caution, suggests that the unglazed pottery excavated from the middens in Pottery Mound at Ain Jawan (Types 3a, 9d, 9f, 52) belong somewhere between the Hellenistic and the Roman periods, i.e. that it ranges from 330 BC to 300 AD. She contends that the glazed sherds found on the surface may have a range so wide as to extend from 330 BC to the 13th Century.[149]

b. The other small sites

The pottery from these sites all came from the surface collection and some of it is again very similar to that found at the Hellenistic sites, such as the Greek Tell (Failaka), City V (Bahrain) and even Ain Jawan; as for instance, the red painted bowls, the bowls of types 9d, 3aef and the ridged bowls 19abd, (see Table 17 for the comparisons). These seem, broadly speaking, to be of the Hellenistic period or, more particularly, of the somewhat late Hellenistic period. Precise dates again for the pottery of these sites cannot be forthcoming at present, because there are no thoroughly reliable and dateable archaeological data, and and one cannot but await future excavations.

General Conclusion

As at the other Arabian sites, the Bowl-types are here more numerous than the jar types, and among the bowls the most common are the shallow ones of various types e.g. 3a,e,f, 4c, 9a,c,d and 13a, particularly at Ain Jawan. The most common bowls at the latter site are of types 19a,b,c,e, and these types are in fact found at many other sites believed on good grounds to be Hellenistic; very conspicuous too among them are large wide bowls. Nor can one fail to take note at these sites, and particularly at Ain Jawan, of the presence of other varieties, such as a white-faced red ware, a black-faced red ware, a red-on-red ware and a white-faced exteriorly red-painted interiorly pinkish buff ware. The finer wares usually comprise the red-on-red style or pinkish-buff on pinkish buff; and generally speaking these wares in particular are incised in horizontal straight lines.

The most common jars are of the narrow-necked type, 2a,b,c, 3 and T6, but the most characteristic jar-type is Type 2, with a long narrow neck and a large vertical handle from the rim to the shoulder (Pl.XLVII No.89). The other very striking jars are of the same hole-mouth type 20, (Pl.XLVII No.88). 23(Pl.XLVIII No.91) and 11b (Pl.XLIII No.70). Coming now to the surface finish, no doubt exist that the glaze was especially popular. Burnishing, to be sure, was very rare indeed, perhaps for the very reason that glazing was so very popular.

The most common type of decoration is the incision of the various designs but, among these, the presence of "saw-tooth" decoration has, as we have seen, a chronological significance. Painting is indeed rare and restricted to the inner surface, normally

in red, while the outer surface is normally slepped in white or or simply left without coating. Whereas the use of sand as a temper is almost the rule, the use of chaff, crushed shell and grog is rare. In general, it can be said that the pottery of the Eastern Province of Saudi Arabia is of the Hellenistic style in form, surface treatment and decoration, and particularly the red painted decoration.

CHAPTER V

THE SITE OF TUWAIR (North Arabia)[150]

This site is located south of Sakaka, adjacent to the sand dunes on the northern edge of the Nafud. (See Fig.7); it was given the number 201.4 during the archaeological survey in 1976. This large site with a flat area, measuring approximately 500 x 200 m, has been covered by wind-blown sand and was originally larger. There are indications of lines of mudbrick walling suggesting that they could have formed a town wall.

Soundings and Stratigraphy:

Two small archaeological soundings of 2 m. square were dug in 1977, in order to clarify points of chronology and help elucidate the pottery history of Northern Arabia. One of these soundings was abandoned because of loose sand and a second was opened between the two visible walls. Seven archaeological levels were found, but no floor levels could be established with the buildings, and hence the stratigraphic reconstructions were not satisfactory.

Some pottery was yielded by these levels, but it was not reliable for dating purposes for several reasons. Although the site is large and important, the excavated sounding was very small and the deposits were loosely packed in the layers and therefore it did not seem reasonable to place much reliance on the sequence of material yielded by it. The number of sherds was too few, so it was difficult to ascertain which type or types were common and which would be adequate for the chronology. For these reasons, it seems that the pottery of the site, at this stage, is not really reliable for a firm dating of the pottery of other Arabian sites; but there are,

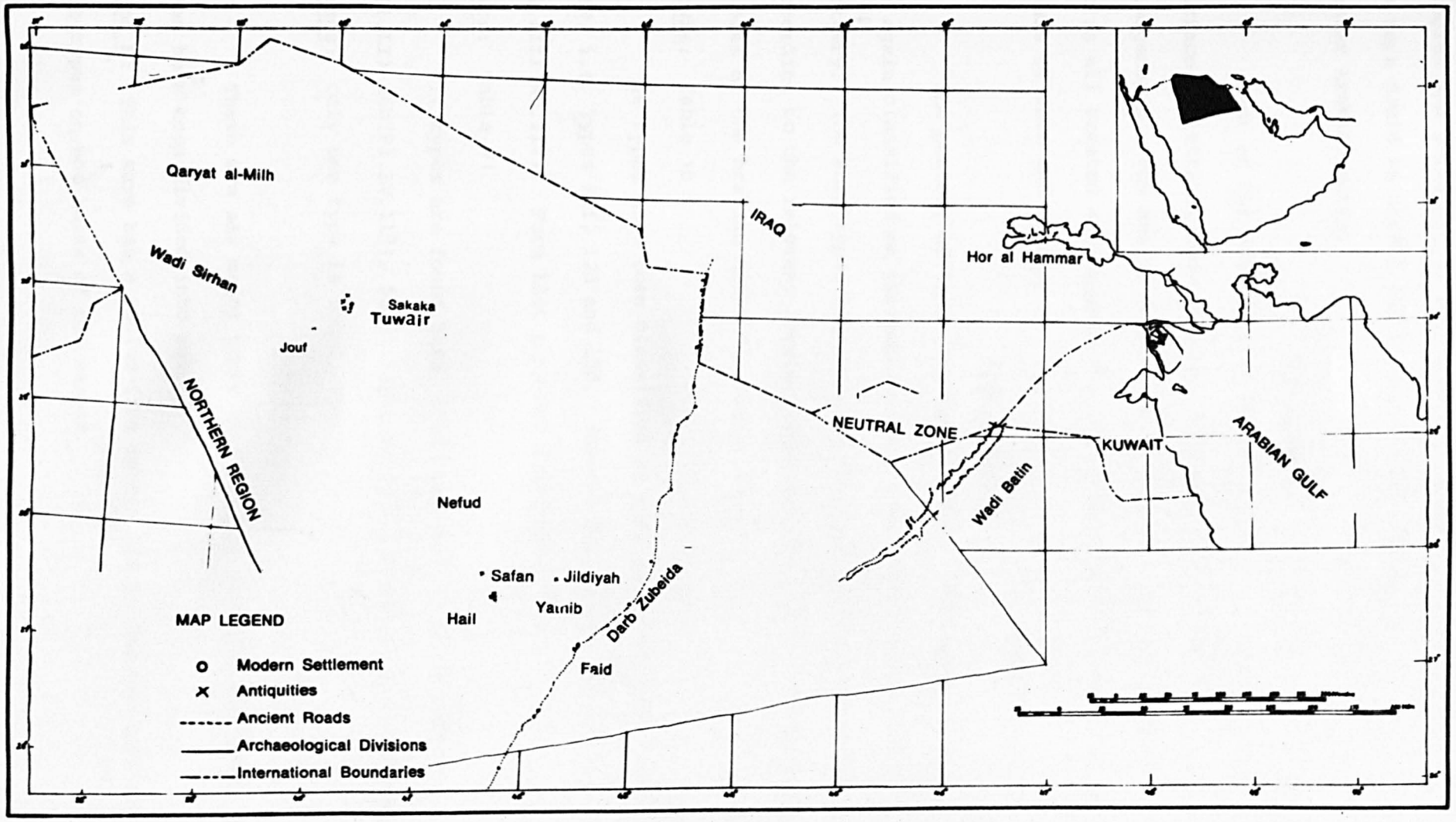
Qaryat al-Milh
Wadi Sirhan
Sakaka
Tuwair
Jouf
IRAQ
Hor al Hammar
NORTHERN REGION
NEUTRAL ZONE
KUWAIT
ARABIAN GULF
Wadi Batin
Nefud
Safan
Jildiyah
Yatnib
Hail
Darb Zubeida
Faid
MAP LEGEND
Modern Settlement
Antiquities
Ancient Roads
Archaeological Divisions
International Boundaries

Fig : 7

to be sure, some interesting forms which could be useful for comparative studies and perhaps give some hints regarding the chronology, and these in turn could be useful for an approximate dating of the pottery of orhter Arabian sites.

The Pottery

Most of the pottery is from the sounding but some is from the surface collection. The material from both sources seems to be homogeneous. The amount found here at Tuwair is relatively small, so it is all treated as one unit for the purpose of classification on the basis of form and fabric.

Form Typology

The pottery of this site takes several different forms, and is again classified on the basis of the standard forms of Arabian pottery. The Form-types are shown on the table and are arranged according to the relevant levels. They are also shown in the Major Tables of the Arabian Sites for comparisons.

Bowls: Table 10

28 types have been classified at this site, but only three are new, i.e. Types 11f, 12d and 13d. (See Pl.XII No.103 and 108 and Pl.XIII No.117); Form List p 380 and Catalogue p 490

Jars: Table 11

11 types are found here, 5 of them new: 29,30(Pl.L)31a (Pl.LI) 46b(Pl.LV.119), 55(Pl.LVIII No.129), Form-list and Catalogue.

Bases: Only one type is found, Type 1.

Fabric Typology

There are six major types of fabric at Al-Tuwair and some of them have been divided into sub-types:

Type B: This ware has a medium-fine fabric and is divided into three sub-types on the basis of the temper.

TUWAIR

BOWL TYPES																																
Level	2		3						4	5	8	10	11			13			14		17	18	19			21			23	26	29
	a	b	a	b	c	d	e	f	b		c	b	a	c	f	a	b	d	a	b		a	a	c		a	b	a			
sfc				×		×		×	×	×	×	×						×	×	×			×	×						×	
2							×																								
3				×		×								×		×			×							×	×				
4	×	×											×				×				×										
5			×		×												×					×					×	×				
7															×		×										×		×		×

Table (10) Tuwair: Occurance of Bowl Types by levels

Level	JAR TYPES												K-Base	handle	
	3	5	6	8	10	13	29	30	31	46	55		1	1	2
			b	a		a			a	b					
sfc		×	×	×		×		×	×		×			×	×
2													×		
3				×				×							
4							×						×		
5		×			×		×								
6							×								
7	×										×				

Table (11) Occurance of Jar Types by level

FABRIC-TYPOLOGY									
Level	B			C		D	E	F	
	II	IV	V	I	II	II		I	II
sfc	×	×	×	×	×	×	×	×	
2		×		×					
3		×	×	×	×	×			×
4		×	×		×				
5		×	×	×	×	×			
6					×				
7		×	×		×				

Table.12 Occurance of Fabric Types by level

	SURFACE FINISH						DECORATION									
								Incision								
Level	Plain	Slip o/s	Slip b/s	wash o/s	wash b/s	Burnish	Glaze	Painting	Straight Horizontal Line	wavy Line	Saw tooth	Stamped	Impressed circles	Impressed drop	Vertical dash	
sfc	×	×	×	×			×		×	×	×	×	×		×	×
2		×				×		×	×		×	×			×	
3	×		×	×		×		×	×		×					
4		×	×	×					×					×		
5	×	×	×			×			×						×	
6			×									×				
7		×	×					×								

+ o/s = out side
- b s = both side

Table (13) Occurance of Surface Finish and Decoration by level

BII:

This has a chaff temper with some small red and black pieces of grit and a dark grey porous core. Only a few sherds have been found, with a red surface, having either been slipped or wet-smoothed. It occurs in Form-type 12d, which is a new type. See Pl.XII No.108; Formlist , and catalogue , Pl.XCIV No.b illustrates the chaff temper on the outer surface, No.c again illustrates the chaff and also the core in cross-section. A sample (TW1) of Bowl 12d has been petrographically analysed, and the thin section shows the matrix to be birefringent streaky clay with elongated voids from the burning out of chaff and to contain some quartz and perhaps some sand.

Type BIV: The clay here is medium-fine to fairly fine and is tempered with small pieces of grit. The paste is well fired in an oxidising atmosphere, chiefly in red, but also ranging from red, dull red, brick red to pink. All examples are hard and wheel-made.

All the vessels have a slip on both the outside and the inside, often in brown or grey, red or cream, or occasionally, buff or purple; some have a self-slip, but this is rare. One is horizontally ring-burnished and another merely polished. A few have a wash on the outer surface, chiefly in white, but also in cream or dark grey.

Nearly all the decorated vessels of this type at Tuwair were decorated with incision.

The ware occurs in the following Form-types:

Bowls: 2.3b,c,f,11a,f,13b,d,18a,19a,c,21a,b,23a,26,29.

Jars: 3,5,6b,13 ,29,30 and 55.

Bases: Type 1 only.

Type BV:

This type is similar to BIV, but has larger pieces of grit. There are only six examples. All except one were wheel-made. Four

were fired in an oxidising atmosphere, the other two having a grey core. All have a red or buff slip on both sides. One has a white wash on the outer surface. None of this type were decorated. This type occurs in the following Form-types:

Bowls: 14a only.

Jars: 8a,10,30 and 46b.

Bases: Type 1 only.

Type C:

This type is divided into two sub-types:-

CI: Fine ware, it has only Bowl-types 3a,b,e,13a,b and 14a.

CII: This type is similar to Cl but has some small pieces of grit; it includes Bowls: 3f,5,8c,13a,b,17 and 19a.

Jars: 3 and 29.

In general, all the examples of both sub-types CI and CII, are similar in technique, and therefore will be dealt with together. They were fired in an oxidising atmosphere, but some examples of Type CII were not fired the same colour throughout or all over. They were fired light red, red or buff. All the vessels were wheel made and most are very thin, especially CI. They all have a slip on both the outside and the inside in different colours, the main colour being reddish brown, but ranging from red, pinkish-buff, buff, orange to dark red, and occasionally white or grey. A few examples have a wash in cream or white. Two examples of type CI are burnished, one of them highly burnished on the outside but less so on the inside, the other horizontallh wheel-burnished. Four examples of Type CI are decorated; two of them have an incised decoration with two "saw-teeth" and small impressed circles on top of the rim, while the other two are decorated in light red and red paint, probably on both sides,

Some examples of Type CII have straight horizontal parallel incised lines below the rim, and one example has a stamped decoration below the rim on the outer surface. Jar 29 (Pl.L No.100).

Type DII: Sand-tempered with some grits. Most examples are fired in an oxidising atmosphere, but some did not fire the same colour throughout. The colours range from red to brown or pinkish-red to buff and orange, and none of them have black or grey cores. All were excellently wheel-made and some are very thin. All the wares have a slip on both the outside and the inside, chiefly in red, brown, or occasionally in creamy white or grey, while some have a buff-white or cream wash. Most of the sherds are undecorated, but one or two examples have straight horizontal incised lines below the rim. This type occurs in Bowls 11c, 14 and 21b and Jar 8a only. Some samples have been analysed petrographically. All of them are from the pottery of the surface collection, namely TW2,TW3,TW4 and TW5. All the thin section s show a birefingent matrix of fine buff to red clay, containing abundant quartz grains, sub-angular to sub-rounded, with a maximum size of 0.5mm, as well as opaque iron grains all with a maximum size of 0.5mm. Sample TW2 has an anisotropic matrix, with occasional feldspars (Plagioclase and microcline). (See Pl.CXXV No.a). Sample TW4 has a streaky clay and sample TW5 has some reaction-rims, the size ranging from 0.3-0.8mm. (See Pl.CXXV No.b).

Type E

This ware is also sandy, but finer than Type DII; it has a very fine sand temper and is well levigated. All the examples are excellently wheel-made, were fired in an oxidising atmosphere, and have the same colour throughout, which is red or orange-red. Some of the vessels are uncoated, their surfaces having been merely wet

smoothed, but the majority have a slip outside and inside, usually in red. Plate CIV No. C Bowl 13a, illustrates the light red uncoated ware, and No.f Jar 3 illustrates the red slip. Pl.C Nos. c and g illustrates the fine cross-section of both these examples, all the photographs being in colour. One example has a white wash on the inside and on the rim. None of the examples are decorated. This type has Bowls 4b,8c,14a, and Jars 3 and 6b.

Type F

This ware is divided into two sub-types:

Type F1: This ware is mainly of a greenish-grey or buff, well levigated clay. It is coated with a greenish-yellow, light green or bluish-green glaze both on the inside and the outside. Only four examples have been found, all of them glazed ware coming from the surface collection. All are wheel-made and well-fired, being the same colour throughout; none of them are decorated except for the glaze. Two of the examples are bowls of form-type 3b and 10b and there is one Jar of Type 13a.

Type F11: This ware is greenish-buff-creamy clay and occurs in only one example, a jar of Form-type 23. This is wheel-made and well-fired, and has a white slip both on the inside and on the outside. There is no decoration.

It seems that the fine paste of this ware is mainly of a pinkish buff and pale cream colours. Nearly all the vessels are fired in one colour throughout, except for a few which have a light grey core in a fine ware, or a dark grey or black core in a medium-fine ware; A sample of this type has been petrographically analised. Pl.CXXX No.b, illustrates dense nonbirefringent matrix of a pale yellow cream colour, contains very fine quartz, ranging from silt size to 0.06mm which are sub angular sub rounded. It also contains

much from arc fragments and scattered iron oxide, some pieces of biotite and also calcareous clay and some reaction rims.

Temper:

The clay is chiefly fine to medium-fine and fairly well levigated, tempered mainly with medium-sized grits or sand, for the most part quartz; the grits are angular or sub-angular, the size ranging from 0.5-1.0mm. Some of the sherds contain mica. The other tempering material is chaff, but it seems that, unlike the case of Zubaidah, HBH and Dawasir, chaff was not common in this area.

Method of Manufacture

The sherds of the surface collection indicate that perhaps all the vessels were wheel-made. The sherds from the sounding were also wheel-made, but there are also a few hand-made vessels.

Surface Finish:

Slip: The majority of the sherds have a slip, both on the inside and the outside. The pottery from the surface collection often has a red or brown slip, or occasionally a yellowish-buff slip, whereas most of the pottery from the test-sounding has a white or brown slip, and, less often, a red, buff or grey slip. Some sherds are uncoated, i.e. have no slip, simply being wet-smoothed on both sides.

Burnish

Burnishing does not seem to have been a very common practice at this site, as only a few burnished sherds have been found so far. They show a ring or horizontal wheel-burnish, usually on both sides.

Wash:

There are some sherds which have indications of a white, cream or grey wash.

Glaze:

Glazed sherds are also found at this site in light green, greenish-yellow and blue. However, there are very few of these, all of them coming from the surface collection.

Decoration:

Incised decoration in different designs is fairly common at this site, although a minority of sherds bear painted red bands on the outer surface. The majority of the incised sherds came from the surface collection, the most common designs being the 'saw-tooth' and straight horizontal lines and the other, less common, being horizontal wavy lines, vertical impressed patterns, (Pl.LVIII No.129) impressed drop-shaped designs, falling-leaf and stamped decoration. (Pl.L No.100).

Chronology:

The chronology of this site is based only on the pottery, and is arrived at by comparing the parallel material from the earlier Nabataen levels at Petra and related sites, on the one hand, with that from the sites in Eastern Arabia, Thaj and Ain Jawan, on the other. There are certain forms at Tuwair which are similar to those at Petra, for instance, the rim of the cooking-pot of Bowl-type 11f (Pl.XII No.103); a bowl with slightly curved sides, incurving rim with rounded lip, of Type 13d (Pl.XIII No.117); a bowl of Type 11a and some other fine bowls are in the same style as Nabataean Painted Ware. On the basis of these comparisons, the al-Tuwair material is dated to the first century BC.[151]

There are also, interestingly enough, some parallels between the pottery of Al Tuwair and that of Thaj. The latter was published by Bibby, and certain resemblances can be seen with the in cised designs, such as the 'saw-tooth' or 'falling leaf'. Other parallels occur in

the carinated bowls with everted rims. Bibby dates the Thaj pottery to c300-100 BC. and on the basis of this date-range, the Al-Tʿwair pottery has been dated to the first century BC by Adams.[152] It seems that the pottery from Al Tuwair is identical neither with that from the Nabataean area nor with that from Hellenistic Eastern Arabia. For example, no Hellenistic black-faced red ware was found at Al Tʿwair, as of course, it was in Eastern Arabia, nor were bowls with pronounced ledges inside the rims (Bibby 1973: Fib.15 Type 2a; Potts et al.1978, Pl.14 No.118, 120 etc.) The Zubaidah Type 19ab(Pl.XVIII No.164-5) is also rare. The fact is that none of the really typical Nabataean forms are represented at Al Tuwair. P.Parr, therefore, suggests that the site was abandoned before the period of the Standard Nabataean Pottery corpus, i.e. the first century AD., though not before a little of the earliest, (i.e. first century BC) painted pottery had reached it.[153]

General Remarks:

In the first place, the outstanding features of the Tuwair pottery are the high proportion of bowls with everted, profiled rims, and also the large number of very thin-walled bowls with vertical or slightly incurving rims and with pointed or rounded lips. The jars are fewer in number and there is an absence of jugs and juglets. Another point is the absence of incense-burners, so common in most other sites in Arabia. There is a relatively high proportion of fine ware, as most of the thin-walled bowls are of fine fabric.

Another marked characteristic of this pottery is that most of the sherds from the surface collection have a red or brown slip, whilst the majority from the sounding have a white or brown slip. Glaze is not common at this site, but all that was found came from

the surface collection. Some burnished sherds were found in the surrounding as well as in the surface collection, but there were very few in the latter; at present then, it is not clear whether this type was common or not at this site. Perhaps the most typical feature of this pottery is the incised 'saw-tooth' decoration on the outer surface of the vessel. Stamped decoration is not quite so common. Above all, the Twair pottery is consistently of excellent quality; it is wheel-made, well-levigated and well fired.

CHAPTER VI

THE SITES, KHURAIBAH AND KEIF EZ ZAHRAH OF THE AL-ULA OASIS (North West Arabia)

The Ancient Sites of the Al-Ula Oasis (North-west Arabia)

Al-Ula is the modern name of an historic oasis located along the Wadi al-Ula north of Al-Madina in the north-western Hejaz (Fig.8). The wadi itself has long been a major commercial and administrative link because of its geographical location and the strategic importance of the area has been clearly recognised and utilised for over 3000, and possibly over 3,500 years. Ancient sites are located in the area, among which the main one is known as Khuraibah and a secondary one as Khaif ez-Zahrah, which was probably just a part of Khuraibah.

Khuraibah:-[154]

Khuraibah, the ancient Dedan, is located north-east of Al-Ula between the cliffs and the rail road. This site is marked by extensive ruins stretching about 800 m. south of the entrance to the Wadi Mu 'tadil, which is about 250 m. wide. Some monumental architecture (long since vanished) and structures were traced. Many hundreds of inscriptions are recorded in the sandstone cliffs which surround the site. These inscriptions indicate the nature of ancient Dedan, and also the trade-links between North-western Arabia (i.e. Dedan) and Southern Arabia, as well as demonstrating the outstanding importance of Dedan as a trading-centre as early as the sixth century BC.[156]

Khaif ez-Zahrah[157]

This site is located on the northern side of Wadi Mu'tadil. It

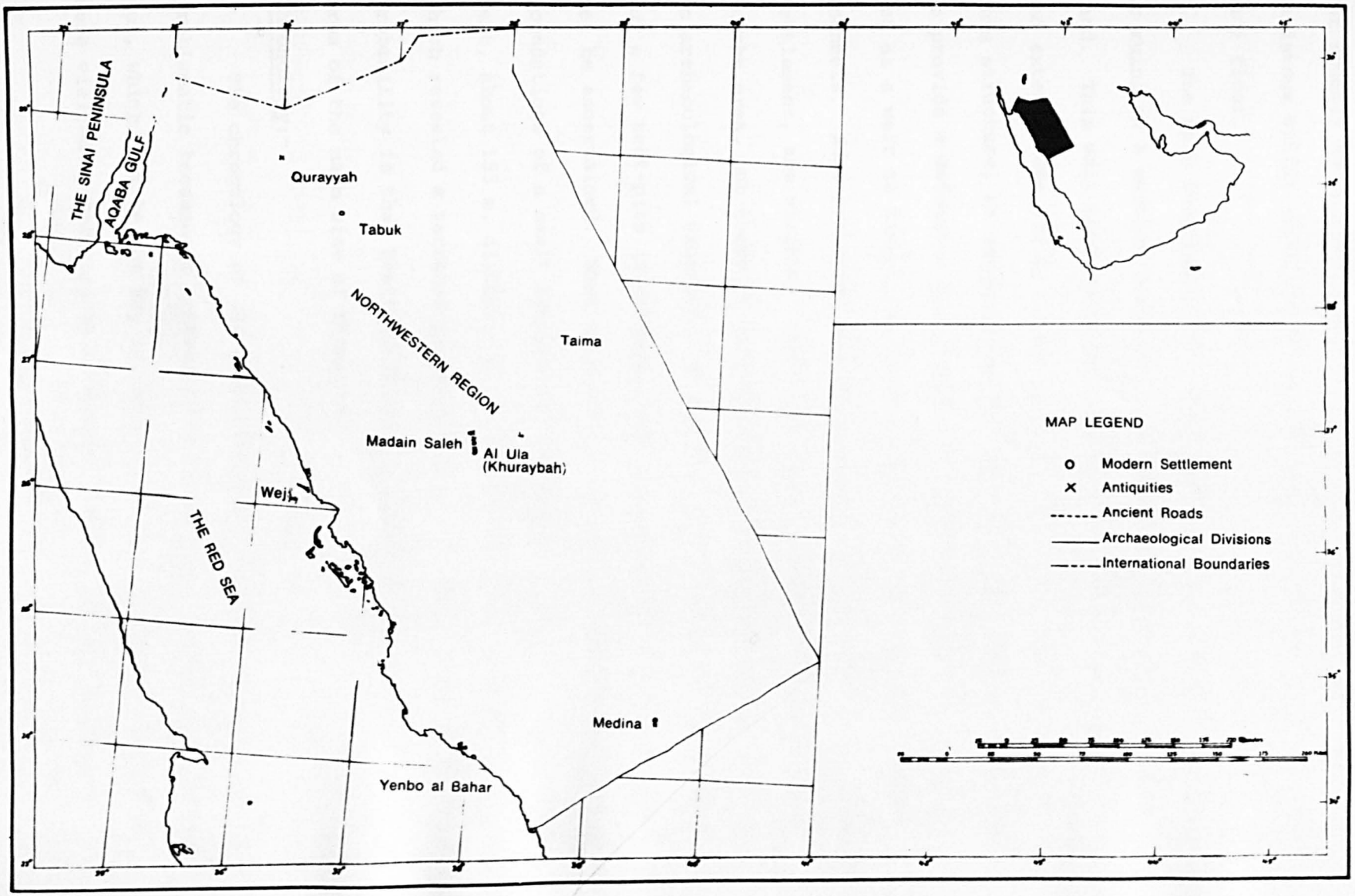
THE SINAI PENINSULA
AQABA GULF
Qurayyah
Tabuk
NORTHWESTERN REGION
Taima
Madain Saleh
Al Ula
(Khuraybah)
Wejh
THE RED SEA
Medina
Yenbo al Bahar
MAP LEGEND
Modern Settlement
Antiquities
Ancient Roads
Archaeological Divisions
International Boundaries

Fig:8

lies approximately one kilometre north of Khuraibah which extends to the southern side of the wadi as far as the entrance of Mu'tadil. For roughly 400 meters of its length it stretches along the base of sandstone cliffs which flank the wadi and extend 240 meters into the wadi floor.

The main features of the whole area are the extensive remains or ruins of a massive stone wall, or dam, now largely covered with sand. This wall runs across the entire width of the Wadi Mu'tadil, and extends some 250 m. to the east of the site. The function of this structure, as suggested by Mr. Parr,[158] would seem to have been to provide a defensive line across this important Wadi, and also to act as a weir to divert the flood waters from the wadi into regular channels. Some scattered foundation-walls, actually of the residential settlement, are visible; there are indeed several foundation walls in the area, but there is no architectural superstructure at the site. No archaeological excavation at all has yet been undertaken, except for a few test-pits (soundings), and no stratigraphical levels can yet be ascertained. What is certain, however, is that these are the foundations of a small residential settlement. South of this settlement, about 155 m. distant, in the fields, another sounding was dug, which revealed a terraced platform with steps and a court. The probability is that Khaif ez-Zahrah was a suburb and an agricultural area of the main site of Khuraibah.

Chronology:-

The chronology of the Khuraibah sites and the adjacent area is problematic because no archaeological excavation has yet been carried out, which must be the key to the chronology. However, these sites were visited by Schulers, by archaeologists and journalists and a

preliminary survey was undertaken, hundreds of inscriptions, bases of statues, and sherds having been found. This information of course sheds some light on the picture for all these explorers attempted to date the site on the basis of different data. The site was first dated on the evidence of its monumental epigraphy, which places it from between the sixth and the first centuries BC. On the basis of the inscriptions, Winnet[159] states that the establishment of the Minaean colony at Dedan goes back to the latter oart of the fifth century BC, and that the absence of Minaean influence on Dedanite inscriptions suggests that the Dedanite kingdom flourished before the establishment of the Minaean colony. Mr. Parr[160] goes further and believes that the occupation of Khuraibah did not extend over a long period of time; he states that three statue bases, dated by Albright to the late fourth or early third centuries, were found just below the surface of the ruins, and that therefore the final major occupation of the site is to be dated not earlier, and probably not much later, than about this time. He dates the pottery of this final occupation to the Persian and Early "Hellenistic" periods. The Nabateans occupied Dedan in the first century BC., but their principal settlement was a Meda'in Saleh; not a single sherd of Nabataen or of contemporary late Hellenistic or Roman pottery was found in the Al-Ula valley. Mr Parr, on such grounds as these, believes that the archaeological evidence presently available strongly indicates that Dedan was abandoned when Meda'in Saleh took its place as the commercial centre of this part of Arabia.

This site is, in fact, an important one, a · is dated mainly on the basis of the inscriptions and the statue bases. Its pottery, as it has been seen, has not yet bee studied, even though, on the face of it, it seems to be thoroughly reliable, in view of other

reliable archaeological data, such as inscriptions, statues, a necreopolis, rock-hewn tombs and graffiti. Hence the pottery of these ruins, or the ruins just below the surface, can be dated on the basis of this other evidence (as mentioned above) and, therefore, can be used for comparative studies along with that of other Arabian sites.

The Pottery:

The pottery collected from both these sites, Khuraibah and Khaif ez-Zahrah, is all very similar and homogeneous, both in the style and the technology. It has been suggested on good grounds that at both sites all the occupation in the lower Wadi Mu'tadil is contemporary; if so, all the evidence from both settlements can be treated as one unit. Any differences between the yields of the two sites, if found, will be discussed in detail.

Form Typology

This is an interesting site and many different forms can be seen, but the majority follow the forms of the standard pottery to a greater or lesser degree.

Bowls: 33 types of bowl are classified (Table 17) but only 5 of them are new, 53, 54, 55 (Pl.XXXI) and 56 (Pl.XXXII, no. 227) Form-list 419 catalogue 517 - 8

Jars: 12 types of jar occur here (Table 18) but only one is new, 56 (Pl.LVIII, no. 130). Form-list 453 catalogue 546

Bases: Only three types of base can be classified here (Table 19).

A more descriptive form typology appears later in this chapter

in general remarks of Khuraibah pottery.

Fabric Typology

The clay of the Khuraibah pottery is fine to coarse, relatively well levigated, but sometimes has large pieces of grit. It is here classified into seven Fabric-types (Inc. sub-types) on the basis of the temper (Table 20).

Type B: is derived into:

BIV: The clay of this ware is tempered with some small grits and all the examples are fired in one colour throughout, ranging from rich red to red to pink and, rarely, grey. All have a slip both on the outside and the inside, chiefly in red to reddish-brown, to greyish brown and pinkish-red. Only one example has a buff wash on both sides. The only decoration in this type is painting in brown and black, and the designs include cross-hatching and wavy lines. This applies to three examples only, the rest of them being all undecorated. All are wheel-made. This type comprises Bowls 2a, 4d, 8b and 9a. Jar 32a only and Bases 1 and 2.

BII: The clay is fairly well levigated and has had chaff and some small grits added as the tempering materials. This ware is rare, a very few examples have been found in Bowl-type 22 and Base-type 2. All the examples are fired in the same colour throughout, in pink or pinkish-red and have a slip in the same colour as the ware or have been washed or slipped in pinkish-yellow. One example is decorated with grooves on both sides.

BV: This ware is more common than BIV and has large rough grits. It is mostly well fired in an oxidising atmosphere in red, brown and pink and rarely in grey. All the vessels are hard and wheel-made

except for one or two jars which are hand-made, but wheel finished. Most of the examples have a slip on both the outside and the inside, but a few were simply wet-smoothed, either on one surface or on both. The most common slip was in red, other colours being brown, buff and cream. Some examples have a wash on one or both sides in pink, brown, buff and cream. Most of the vessels have no decoration, some, however, have a painted decoration in black or brown, chiefly in straight, horizontal, parallel lines below the rim; now and then between these lines are cross-hatched or wavy designs. Only one jar has an incised decoration just below the neck. Typs ware has Bowls: 2a, 4b, 6c, 9b, c, e, 13a, 14c, d, 15c, 33a, 53 and 54.

Jars: 8c, 9a, 11a, 13, 26, 32a, 43, 55 and Bases 4 only

Type C1:

Only one example of this very fine pottery is classified: Bowl 9a, well-fired, with dark red paint.

Type CII: This is also a fine pottery but includes some grits.

All the vessels of both C1 and C11 are wheel-made, all are well and evenly fired, chiefly in red but sometimes in pink, brown or dark brown throughout. All have a slip on the outside and inside, or, very rarely, on the outside only, the most common colour being brick red, but ranging from pink to red, reddish-brown to brown. Some vessels had a wash applied to both surfaces, or occasionally to one surface only, the main colours here being light cream or cream, but other colours occurring are red, or greenish. The surfaces of most of the vessels were wet smoothed, usually on both sides, but occasionally on one side only, i.e. the outer. Most of the

bowls, but not the jars, were painted, chiefly in black and brown, but sometimes in purple-red; this again occurs on the outer and/or the inner surface. The painting is in different designs, i.e. vertical hatching, cross-hatching, diagonal hatching, wavy or zig-zag horizontal lines, horizontal bands and parallel vertical lines. The type of decoration on the bowls on the other hand, is in wavy or zig zag horizontal incised lines on the outer surface below the rim.

Type D: This sand-tempered ware is divided into two sub-types:

D1: The chief temper of this sub-type is chaff with some small pieces of grit. In fact, this type is not common, there being only four examples. All the examples are wheel-made and well fired in the same colour throughout and all over, chiefly in red. All the examples except for one are undecorated, the exception being decorated with horizontal wavy incised lines on the outside below the rim. This type comprises Bowls: 1, 5 and 9a.

D11: This ware is similar to type D1, but has no chaff, only pieces of sandy grit. It seems that this type is more common than type D1, and occurs in Bowls 1, 6a, 9a, c, 11a, 14a, c, 19c, 22 and 33a and Jars: 11a, and 56.

All the examples were wheel-made and all of them are hard and well fired in an oxidising atmosphere, in brick red, reddish-purple or brown. Except for a few vessels, all have a slip on both surfaces, the exceptions being wet-smoothed on both surfaces, but especially on the inner surface. The colours of the slip range from red to reddish brown to pink, and occasionally green. Some of these vessels have wash chiefly in pale yellow or greenish cream.

Only a painted decoration in black and brown occurs on this type, and is found on the bowls, occurring both on the inner and the outer surface. The designs are cross-hatches, and one example has additional painted circles below the cross-hatching; another example has wavy lines below the band.

From all the above, it emerges that the main materials used as tempers at Khuraibah and its agricultural suburb Khaif ez-Zahrah were pieces of grit or sand. For the majority of the vessels of these types a fine clay was used; chaff was only rarely used as a temper. The vessels were probably fired sufficiently and evenly; all were fired in an oxidising atmosphere, chiefly in red, reddish-brown, pinkish-red and sometimes in grey, but some examples have patches of darker firing on the surface.

Surface Finish

There are three types of surface finish; wet-smoothing, slip and wash. The first is rare and was applied mainly to the inner surface, but sometimes occurs on both sides. A slip, especially on both surfaces, is most common; sometimes it was applied to the outer surface only, the inner surface being merely smoothed. The most common colour of slip is red. Other colours range from red to rich red to brown, pinkish-red to buff, and occasionally grey and cream. A wash was also common, but not as common as the slip; it was at times applied to both surfaces at others only to one surface and was chiefly in light cream or pale yellow, light green, brown and red, but the latter is rare.

Decoration

There are two types of decoration, painting and incision, but

painting is more common. The paint is black, brown and red in different motifs, either on the outer or on the inner surface, below the rim.

Motifs:

Motifs are very limited in range, and chiefly comprise rows of vertical lines rounded by thicker lateral borders (trellis) or cross-hatching, vertical hatching or diagonal hatching. The other designs are horizontal, wavy, zig-zag lines and small black circles below the trellis. Although a minority of the vessels bear simply incised straight or wavy lines, one example bears a comb design below the neck and another has a punctuate decoration.

Method of Manufacture

The technology involved in the shaping of the pottery of this site is not completely known, but it seems that most of the vessels were wheel-made, except for a very few hand-made specimens.

General Remarks on the Al-Ula Pottery

To sum up then, there are several noteworthy features in the Al-Ula pottery. The main characteristic of this pottery are the absence of spouted and lid-ledged jars and the scarcity of handled jars, only two or three examples of the latter having been found. The quantity of bowls is larger here than that of jars, but, even so, there are quite a few jars. Thin-walled bowls with thin rounded or sharp lips are common too, at this site, and a noteworthy feature is certainly the large size of the open bowls, the diameter of some of these reaching as much as 48 cm (See Pl.XXXl, no. 225). No high ring or pedistal vessels have been found, but flat bases of Types 1 and 2 are common. Fabric Cll, which is, it will be remembered, a fine ware, is common here, especially in the bowls.

Another noteworthy feature of this pottery is the painted decoration in black, brown and red in different designs below the rim, on the outer or the inner surface, or on both. This painted decoration is usually applied to fine wares but it is also found on sandy wares; coarse wares are usually undecorated. Incised decoration is simple in style and in any case rare in this pottery. All the vessels have a slip mainly on both sides, chiefly in red, a wash is also common in light green and light cream.

In general, it can be claimed that the pottery of the sites, Al-Khuraibah and Khaif ez-Zahrah, is very similar, but it seems that of al Khuraibah is, on the whole, much finer. This is probably a sure indication that al-Khuraibah was the leading city, perhaps even the capital of the Dedanite Kingdom, with a large population and large settlement, while Khaif ez Zahrah was, as has been tentatively suggested a suburb; it was very probably the arable and pastoral area with a simple settlement, where the demand for fine ware was understandably limited.

CHAPTER VII

SUMMARY AND CONCLUSION

1. Description of Pottery Types and Wares

Since the relevant pottery from the Arabian Peninsula has been discussed above in detail, and since, moreover, all the pottery aspects of each site are shown in the charts for comparative purposes, it is necessary here only to discuss outstanding aspects of the similarities and dissimilarities within the Peninsula, in order to ascertain any possible cultural links between different regions.

Form:

Bowls:

As a preliminary to any discussion, it seems advisable to point out that simple bowls occur at all the sites and in every phase of all the excavated sites for the very good reason that they are simple and thus do not require any complex technique; hence the simple bowl in general is not a good subject for comparative study, unless it has a characteristic surface finish or decoration.

Deep or shallow wide open bowls are common at Zubaidah and seemingly too at many other sites in Arabia. (See Pl.VI for comparisons), nos. 52 and 53 are from Zubaidah while Pl.VII no. 55 is from Ain Jawan. Compare also Pl.VIII nos 71 and 76 from Zubaidah with Pl.VI no. 51 from HBH. For other comparisons see Table 17 and Form-list, Bowl-types 6c, 7a - c, 9a and b, and 11a - 12d. For the function of such bowls, see the discussion of Bowl-types of

	SITES	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	MISC
		a	a b c	a b c d e f g	a b c d e f		a b c	a b c	a b c	a b c d e f	a b c	a b c d e f	a b c d d	a b c d e f	a b c d e	a b c	a b	a b	a b	a b c d e	a b	a b		a b									a b						a b c		a b c		a b							a b c																		
SOUTH-WEST ARABIA	ZUBAIDAH	+	+ + +	+ +	+ + +	+	+	+ +	+ +	+ +	+ + +	+ +	+ + +	+ +	+ +	+	+ +	+	+	+ +	+	+ +	+	+ +									+	+					+	+ +																												+
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Table : 17. Distribution of Bowl Types in the Sites of the Arabian Peninsula

Zubaidah pottery, in Chapter 1.

HOwever, the presence of these wide open bowls throughout Arabia surely indicates that they served a common and widely recognised function everywhere.

Again, ear-lug Bowl-type 41c (Pl.XXVl - 209), with rounded base, is a common occurrence at Hureidha, but no parallels are found at any other site in Arabia, except for one example at Raibun. A unique example, Bowl-type 2b (Pl.IÍ - 16) is found at Zubaidah, and is naturally assumed to be an ear-lug type similar to that of 41c of Hureidah, on the grounds that the upper portion of the rim is broken and so suggests some sort of lug; but the sides of this bowl are straight and it is without a rounded base.

Carinated bowls in "Hellenistic" style, with vertical everted or overhanging rims, are common in the Eastern province (Pl.IÍ, no. 22 and Pl.IIÍ, nos. 23-26), but Bowl-type 3f no. 25 from Ain Jawan is an even more common type found at most of the sites of the Eastern Province (see Table 17 and Form-list, Bowl-type 3b) and it is for that matter also common at Tuwair (Adams et al. Aŧ - 1, Pl.17/11 and D.P. Aŧ - 2 Pl.32/10-19).

Of course, carinated bowls, also occur at Zubaidah (type 3a and b, Pl.IÍ, nos 18-21), see Table 17 and Form-list types 3a and b for similar examples. Type 3b, no. 21 found in Phase 2 of Trench IÍI is certainly a unique example (see discussion under Form types of Zubaidah pottery. The form, and perhaps the fabric and surface treatment, fall within the Hellenistic style of the Eastern Province and it is therefore assumed to have been imported to Zubaidah; if not, the Zubaidah pottery during the late Phase 2 must have reached a highly developed standard of technique, and very

probably have been strongly influenced by the pottery of the Eastern Province.

Carinated bowls in "Hellenistic" style are not found at Khuraibah, nor in the south-west region; carinated bowls in the south-west region in fact have their own style, and this is not found in other regions of Arabia. Bowl-type 3b from HBH (Pl.XXlV, no. 200) can indeed be paralleled by the examples found at Hureidha (GCT) - TMTH, Pl.VII, nos. 12-14), but the latter shows less carination of the sides. Bowl-type 3a (Pl.XXV - 205), also from HBH, has no parallels, strange to say, at any other site.

By far the most characteristic bowl at Kharj and Layla is an open bowl with triangular overhanging rim (Type 4f, Pl.lV, no. 35) a similar type is also found in the Eastern Province (for these similarities see Table 17 and related Form-list). This type occurs neither at Tuwair nor at Khuraibah, nor is it found at Zubaidah. Instead, we see here an open body with exteriorly thickened overhanging rim (types 4a, b, c, Pl.lll, nos. 27-29). For these similarities see Table 17 and related Form-list. Bowl type 9d, with straight sides but missing base (Pl.IX, no. 83) can probably be paralleled by the offering bowl of Bibby type 3, found in City V at Qalat al Bahrain and at Thaj (Bibby, Looking for Dilmun, Pl.lll no. 10 and PSEA, figure 16, type 3).

This type is also found at Kharj and Layla, but apparently not at Tuwair, Khuraibah and south-western Arabia.

Wide-open bowls, with club rims flattened, rounded or grooved at the top, and with exteriorly thickened rims, are particularly common at Zubaidah (type lla, Pl.X and Xl, nos. 95-98 and type llb, no. 99 and Pl. Xll, nos 104-107), their general shape ranging over the

"Hellenistic" styles of the Eastern Province. For similar examples see related Form-list and Table 17. Such wide bowls with club rims and in the "Hellenistic" style are rare in Central Arabia and at Tuwair, and there is a complete absence of them at Khuraibah and in South-Western Arabia.

Open Bowl-type 11d (Pl.XI - 101) from Ain Jawan and Deep Bowl-type 11f (Pl.X11 - 103) from Tuwair are unique examples and do not occur at any other site in the Arabian Peninsula. The rims of both the above examples are triangular and tend to be similar.

Bowl (or cooking pot) types 19a and b (Pl.XV111 - 164 and 165) with a pronounced ledge inside the rim are indeed found at Zubaidah, but whereas they are common in the Eastern Province (Bibby, PSEA, Fig. 15, type 2a and b), they are very rare at Zubaidah. Bowl-type 19c (Pl.XV111 - 164-5) from Zubaidah is likewise typical of the types of bowl from the Eastern Province. It is found at Tuwair as well, but again is rare. These Bowl-types 19a, b and c do not occur at Kharaibah, the Central and south-western regions. For similar examples see Table 17 and related Form-list.

Bowl-type 13f (Pl.XIV - 119), with wavy rim, is common at HBH and two examples of wavy rims are also found, interestingly enough at Haid bin Aqil, although this type of rim does not occur in any other Arabian region.

The goblet, or Bowl-type 61 (Pl.XXXIII- 232), is common at Hureidha and may well be common at the other sites within the south-western region for all we know, but similar examples are not yet known to occur in any other Arabian region. (For similar examples within the south-western region itself, see Table 17 and related Form-list).

Bowl (or cooking pot) Type 21a (Pl.XIX - 173) from Zubaidah parallel the bowl from Tuwair (Parr et al, Atlal 2, Pl. 32 - 22) and also the bowl from Layla (J. Zarins, Atlal 2, Pl. 25 no. 205).

It seems likely on the face of it, that bowls with club and exteriorly thickened rims such as Types 23a and b are common at Zubaidah (Pl.XX, 180-185). Some parallels are also found in the Eastern Province and one example at Tuwair (Parr et al. Atlal 2, Pl. 32 - 13), while they do not occur at all at Khuraibah and in the Central and south-western regions. There are certain bowl types did not found in any other Arabian region (except at Hvd and HBH) such as the bowl types with animal figurines, e.g. Bowl-type 34 (Pl.XXlll - 198), from HBH and Bowl-type 4b (Pl.XXVlll - 215), from Hureidah. The other unique Bowl-types are Bowl 41a (Pl.XXV - 207), Bowl-types 41b and 42, (Pl.XXVl - 208 and 210) from HBH, Bowl-types 43, 44a and b (Pl. XXVll - 211 - 213), Bowl-types 45 and 47 (Pl.XXVlll - 214 and 216(and Bowl-type 60 (Pl.XXXlll - 213), all found at Hureidha only.

Similarly, certain wide open bowls are found at Khuraibah only, and unaccountably, not found at any other site, such as Bowl-types 53 -55 (Pl.XXXl - 224 - 226) and Pl.XXXll - 227.

Small open bowls with rolled rim interiorly, Type 52 (Pl.XXXl - 223) are found at Thaj, and similar specimens are also found at Bahrain and Failaka. For other similar examples, see Table 17 and related Form-list. Bowl-types 57 and 58 (Pl.XXXll - 228-9) are both examples of the black glazed ware peculiar to Thaj; nothing similar to these is found at any other Arabian site.

Jars:

The available evidence suggests that cylindrical jars with narrow necks occur at most of the sites of the Arabian Peninsula,

JAR TYPES

	SITES	1				2			3	4	5	6			7	8				9				10	11		12		13	14	15		16	17	18	19		20	21	22	23	24	25	26	27			28		29	30	31		32	33	34	35	36	37	38	39	40	41	42	43	44	45	46		47	48	49	50		51	52	53	54	55	56	57	MISC
		a	b	c	d	a	b	c				a	b	c		a	b	c	d	a	b	c	d		a	b	a	b			a	b			a	b						a	b	c	a	b		a	b			a	b													a	b					a	b							
	ZUBAIDAH	+	+	+		+			+	+	+	+	+	+	+	+	+	+	+	+	+	+		+	+		+	+	+	+	+	+	+	+	+	+																																																											+
SOUTH WEST ARABIA	HAJAR BIN HUMEID	+	+	+		+			+			+	+							+				+					+	+					+	+	+					+	+									+	+		+	+	+	+	+	+	+	+	+						+																		

in quantity markedly higher at Zubaidah and HBH, lower at Khuraibah. The common Jar-types at Zubaidah are clearly type 2a (Pl.XXXV, 10-15) and type 3 (Pl.XXXVl - 18-22), while these types do not occur at Khuraibah and Tuwair. For similar examples, see Table 18 and related Form-list.

Jar type 4 (Pl.XXXVl - 23-4) is from Zubaidah, but it is noticeably rare here, while common in the Eastern Province, particularly at Thaj (Bibby PSEA, Fig. 15, Type 1). This type does not occur at Khuraibah nor in the south-western region. For other similar examples see Table 17 and related Form-list. The presence of this type at Zubaidah only, and not in other regions, strengthens our conviction of a persistent cultural influence from the Eastern Province during the latest Phase 3. Worthy of our attention here is Jar-type 5 with tall narrow neck (Pl.XXXVll) 25 - 27 which occurs at Zubaidah and Tuwair only, the examples from Tuwair being perceptibly less tall. Tall-necked jars are also found in the Eastern Province, but here with large strap-handles (see Table 18 and Form-list for similar examples).

One of the commonest features of the Zubaidah jar is the club rim, whether on the light or heavy jar. The shape of such heavy club rim jars exhibits the same range of variety as in south-western Arabian jars in general, thus Jar-type 8b (Pl.XXXlX - 50) parallels the bowl from Al-Banna (Harding AAP, Pl. XXVl - 49). For other examples see Table 18 and related Form-list. Jar type 8c (Pl.XXXlX - 51) is a wide open jar from Zubaidah; similar examples, but somewhat less wide are also found at Failaka, and in the central and south-western regions (Table 18).

Jar-type 8d (Pl.XL - 56) and Jar-type 12b (Pl.XLlV - 75)

	SITES	BASE TYPES																								HANDLE TYPES								INCENSE BURNER TYPES				LIDS TYPES								Token or Counter	Objects: U-Shape	Objects: BOSS	Spout	Waisted Bowl (Slag)
		1	2	3	4	5	6	7	8 a	8 b	9 a	9 b	9 c	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	1	2	3	4	5	6	7	8	1	2	3	4	1	2	3	4	5	6	7	8	+	+	+	+	+
	ZUBAIDAH	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+													+	+	+	+					+	+				+	+	+	+	+	+	+	+				
SOUTH WEST ARABA	HAJAR BIN HUMEID	+							+	+		+		+		+		+	+	+	+	+														+																
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	HAJAR AL BURAIRAH																	+																															
	SITE 24 NEAR HAINAN		+																																	+	+			+										
	MASHGHA	+								+									+		+	+	+														+														
	MAKAINAN																				+	+																												
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	MARYAMIH	+									+							+											+																				
	HAID BIN AQIL							+																					+																				
	KHURAIBAH (Khelf al Zahrah)	+	+		+																								+																				
NA	TUWAIR	+																																																
EASTERN ARABA	FAILAKA		+			+	+																		+					+		+																	
	BAHRAIN	+		+		+	+																		+				+								+												
	THAJ	+	+	+		+	+	+																								+																
	UQAIR	+		+			+																								+						+											
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Table [19]. Distribution of Form Types in the Sites of the Arabian Peninsula.

are unique examples, not occurring at any other site in Arabia. Jar-types 14, 15a and 15b (Pl.XLV 78 - 81) and Jar-type 19a (Pl. XLVl - 86) are from Zubaidah. No similar example is found in the Eastern Province, to be sure, but the general features are well within the "Hellenistic" style. The jar from City V of Qal'at al Bahrain is probably of the same category (Bibby, Looking for Dilmun, P.lll, no. 14), the rim with groove being fairly similar to those of jars 80, 81 and 86 of Zubaidah, while the handles of the Zubaidah Jar Types 78, 79 and 80 again are fairly similar to that of Jar type 50a (Pl.LVl - 123) from Ain-Jawan.

The inscribed Jar-type 25 (Pl.XLVlll - 93) with sharply everted rim, is from Thaj; a similar example, as regards the rim only, is found at site 28 (in Kharj area) only, (J. Zarnis, At 3, Pl. 23 - 126).

Jar-type 26 (Pl.XLlX - 94) occurs at Gerrha (near Uqair) only, no similar example having been found at any other site, except in the Layla and Kharj areas (Table 20 and related Form-list).

There are certain Jar-types, be it noted, which occur only in the South-western region and in no other region; such are Jar-types 27b and c (Pl.XLlX - 96-7), Jar-type 39 (Pl.LIIl-lll) Type 41 (Pl.LlV) and Jar 53 (Pl.LVlll - 127). Jar-types 28a from Bahrain (Pl.XLlX - 98) and 28b from Thaj (Pl.L - 99) are in typical Hellenistic style but no similar examples occur at any other Arabian site.

On the whole, the data substantiate the view that the horizontal lug-handle jar is uncommon in the south-western region (except for Hureidha) see Pl.LV - 120, Jar-type 47 from **Subr** Pl.LVll - 126, (Jar-type 52) from Mashgha.

Handles:

It is the vertical single or double lug-handles which are especially common at Subr (Pl.LlV - 116 and Pl.LVl - 121). One example of a horizontal lug-handle is found at Tuwair, Jar-type 46b (Pl.LV - 119), and the other at Dawasir (J. Zarins, Atlal 3, Pl. 20-23). One example of a broken handle is found at Zubaidah (Jar-type misc. Pl.LIX - 133), but it is not certain whether it is a fragment of a horizontal lug-handle or of a strap handle. Neither the horizontal lug-handle nor the vertical lug-handles occur in the Eastern Province, the common handle type in this region being the strap and loop handle: see Pl.LVl - 123 from Ain Jawan and Pl.XLlX 98 from Bahrain. Both types occur at Zubaidah (Pl.LXVIII - 1 and 2) as well as being found at HBH and in Central Arabia (Table 19 and Form-list).

Bases:

The most common type of base in the south-western region is the medium and very high ring base, with vertical or trumpet-shaped flaring foot (Types 14 - 17, Pl.LXIV, Pl.LXV - 66, PL.LXV 67-9, and Pl.LXVI - 71). The dimple base, Type 18 is actually only found at Hureidha, Ad.S and Raibun.

The high pedestal bases of type 9a, b and c (Pl.LXII - 52-5 and Pl.LXIII - 56 - 61) are common at Zubaidah and also in the south-western region. For other similar examples, see Table 19 and related Form-list.

These high ring, pedestal and dimple bases do not occur at all in the Eastern Province. Here the most common bases are the low ring and concave with low disk; flat bases are common too, and all these are in the Hellenistic style. Low ring and concave bases, and

low disk bases are common also at Zubaidah (Pl.LXl - 35-44, Type 6y, and Pl.LXll - 45 48, Type 7). Similar examples are also found at Layla (See Table 19 and Form-list).

Lids:

We may fairly conclude that lid ledge vessels are common in the south-western region. Pl.XXl - 190 and Pl.Lll - 107 aptly illustrate a bowl and jar of this type from HBH, for similar examples see Form-list. Pls.LXX-LXXll - 2-8 illustrate types of lid; No. 7 is from Hureidha and the rest from HBH. Lidded vessels were perhaps not used in Central Arabia, at Khuraibah and at Tuwair, and were perhaps very rare in the Eastern Province; Pl.LXX - 1 Lid-Type 1 is from Gerrha. One example of lid ledge jar (Jar Type Misc. Pl.LlX - 133) was also found at Zubaidah, but from the surface collection and not from the excavation itself; it is accordingly not certain whether it was locally produced or imported.

Incence Burners:

Apparently the use of the incense burner was as widespread i in ancient times as it is at the present day; as is evident from their presence in several regions of the Arabian Peninsula except for Tuwair and Khuraibah. The most common type is "Hellenistic", of square shape, with or without incisions. The examples from Zubaidah (Pl.LXXII - 1-2) and from Thaj (Bibby, P.S.E.A. Fig.11) are all incised and are very similar (See Table 19 and Form List for other similar examples).

The examples from HBH and Hureidha are in stoneware, while those from Mashgha, Type 3, and from Subr. Type 4, (Pl.LXXIII - 4-5) are unique, not occurring at any other Arabian site.

Fabric - Chaff-tempered

The most popular type of ware at Zubaidah is chaff-tempered, with porous grey or black core, chiefly fired in red or brown. Similar ware has been yielded by the excavations at HBH, Hureidha and al-Fau, and is also found in the Wadi Dawasir Area. A small amount of this type is also found in the areas of Layla and Aflaj, and even in the lower strata at Ain Jawan. In the rest of the Eastern Region it is very rare, and very rare too at Tuwair, where only a very few sherds of this type occur. Pl.XCIV illustrates the outer surface of chaff-tempered ware; no. a in this plate is from Zubaidah while no.b is from Tuwair, the two examples being very similar. The strong similarity between these two examples can also be observed in the cross sections: Pl.XCIV - c is from Tuwair, while Pl.XCIII - a is from Zubaidah. Moreover, this chaff-tempered ware, remarkably enough, does not occur at Khuraibah at all. (For a detailed study of this ware see above, under Fabric Types of Pottery of each above-mentioned site, and for comparisons see Table 20).

If the porous pottery was common in the above-mentioned regions, the non-porous pink-buff fine pottery was common in the Eastern Region and at Khuraibah, and a similar ware was also found at Tuwair. (See under Fabric Types of each above-mentioned site).

Cream-Ware

The other common type of ware in the Eastern Province is cream ware (Type F), either plain (F11) or glazed (F1). This type is very rare in the south-western Region, only a very few glazed wares having been found, and now believed to be of the "Hellenistic" period and imported. Some examples of glazed pottery in this yellow cream ware are indeed found at Zubaidah, Tuwair and Layla, but were

(A)

	SITES	A		B					C		D		E	F		G	H				I	J	K
		I	II	I	II	III	IV	V	I	II	I	II		I	II		I	II	III	IV			
SOUTH WEST ARABIA	ZUBAIDAH	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+							+
	HAJAR BIN HUMEID			+	+						+					+	+						
	HUREDHA ?		?	+	+	+				+	+			?				+			+		
	KARISH ?																						
	AM QURNAIN																						
	AM JABALAIN							+		+				+									
	AL-QURAIYAT									+		?											
	SUBR			+				+			+	+						+					
	SHUQA		+				+			+		+											
	ADIAT AL SULTAN				+	+						+						+		+	+		
	RAIBUN				+	+						+						+		+	+		
	AL BANNA				+	+						+							+				
	H. ALBURAIRAH				+	+						+							+				
	SITE [4] ?																		+				
	MASHGHAN				+					+		+							+				
	MAKAINA ?																						
	HUSN AL URR				+							+											
	NAQB AL HAJAR			+	+																		
	MARYAMIH ?																						
	HAID BIN AQIL?																						
NW ARABIA	KHURAIBAH+KH.Z.																						
	ATUWAIR			+		+	+	+	+	+		+	+	+	+								
	FAILAKA																						
	BAHRAIN																				+		
	THAJ			+		+	+	+			+	+	+	+							+		
EASTERN ARABIA	AIN JAWAN					+	+		+		+	+	+	+									
	UQAIR					+			+		+		+	+									
	GERHA Ā					+					+			+									
	FARIQ Aʾ AKHRASH					+							+	+									
	SITE 208 90					+	+		+		+												
	91					+	+		+		+		+										+
	91								+				+										
	95												+										
	101					+	+																
	106					+																	
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	119								+														
	120						+																
	134								+														
	137					+																	
	138						+																
	139						+																
	140					+																	

(B)

	SITES	A		B					C		D		E	F			H				I	J	K
		I	II	I	II	III	IV	V	I	II	I	II		I	II	III	I	II	III	IV			
EASTERN ARABIA	SITE 141														+								
	142									+				+									
	144						+					+											
	147						+	+		+				+	+							?	
	149						+							+						?			
	150							+						+									
	160						+			+													
	175									+				+									
	187									+													
	207						+			+													
	212						+					+											
	268						+					+											
	271						+			+													
	297														+								
	299					+	+								+								+
CENTRAL ARABIA	207 020			+		+	+	+	+			+			+	+							
	24																						
	26						+							+		+							
	27													+		+							
	28					+			+					+		+							
	30			+		+	+	+	+	+					+								
	38			+		+	+			+			+		+								
	211 01				+	+	+	+	+	+													
	2				+	+																	
	6			+		+			+		+	+											
	22					+	+																
	23					+																	
	212 21			+		+					+	+											
	33				+	+					+	+											
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	67			+		+	+																
	68						+								+								
	70						+	+						+	+								
	74b														+								
	75						+			+				+		+							
	79													+		+							
	AL FAU			+		+				+		+											

Table 20 [A and B] Distribution of Fabric Types in the Sites of the Arabian Peninsula.

probably imported to these sites, most probably from the Eastern Region. Plain, i.e. unglazed, cream ware (F11) also occurs at Zubaidah, but it seems likely that this type was locally made (See Table 20 for other similar examples).

Coarse Yellow Ware

While the type of ware peculiar to and characteristic of the Kharj area is a coarse yellow type (Type F111, see under Fabric types of Kharj Pottery), this is not found in any other Arabian regions, except in the area between Kharj and Layla (See Table 20).

Sandy Ware

Sand-tempered wares with grits and chaff (Type D1 and D11) are also common at Zubaidah, but less so than the above-mentioned chaff-tempered wares. This sandy type also occurs at most of the Arabian sites (see Table 20), although it is very rare at HBH. Van Beek [161] plausibly suggested that it is an imported type, probably from Yeha in Ethiopia; but on the bases of the petrographic analyses there is good reason to believe that it was in fact produced locally at each site where it occurs.

The fine sandy ware (Type E) occurs at Zubaidah, and in the Kharj area; it is thought that it might have been imported to Zubaidah, and if so, probably from Tuwair, as these examples are of excellent quality, wheel-made, well-levigated and fired, and in general, resemble the fine sandy ware from Tuwair. See Pl. C., and compare the cross-section nos. b, d, e and f - the examples from Zubaidah - with the nos, c and g which are those from Tuwair. The cross-sections of the pottery from the two sites, are very similar. See also Pl.ClV and compare the appearance of the pottery from the two sites, i.e. nos a, d and e from Zubaidah with nos, c

and f from Tuwair. The surfaces of the pottery of this fine sandy ware from the two sites are strikingly similar. On these grounds, it is here assumed that the fine sandy ware was imported to Zubaidah from

Ware with Crushed Steatite

It is acknowledged that the use of crushed steatite (Fabric-type Hl) as the tempering material in the ware (sometimes mixed with chaff) was a common technique in the South-Western Region. (For details see under Fabric-type Hl at HBH and Hureidha. This fabric type also occurs in the Wadi Dawasir area, but rarely.

Crushed steatite with crushed flint and chaff (Fabric type Hlll), and crushed flint with crushed pottery (grog) and chaff (Fabric-type HlV) were also commonly found in the South-Western Region (see Table 20 for the distribution of the sites of South-Western Arabia). Crushed flint ware (HII) is only found at Hureidah. The above-mentioned crushed steatite wares do not occur at Kharaibah, Tuwair or in the Eastern Region, except at Zubaidah, where the crushed pottery (grog) ware occurs rarely. For a detailed study, see under Ware Type K of Zubaidah Pottery, and also Pl.Cll, a, b, c.

Steatite vessels and objects in Hellenistic style are certainly common in the Eastern Province, but the use of crushed steatite as temper is uncertain and disputed at present.

Steatite vessels and objects are also found in the Kharj area (Yamama),[162] at Wadi Dawasir,[163] at al-Fau and at HBH.[164]

As far as the sources of steatite are concerned, it appears to be established that some steatite mines have in fact been found by Juris Zarins in the Wadi Masil and the Duwadmi region of the Najd; sites south of Taif and at Hijla (12 km south-east of Abha)

suggest three possible source areas - the Najd, Yemen and the Asir Mountain. Other possible sources should eventually be found in the Oman Mountains, which are now believed to consist of certain light grey soft and hard steatite rocks. It has been credibly established that the rocks at Oman as well as at the Buraymi Oasis at any rate closely resemble the steatite found at Tarut.[165]

The geological formations of the Eastern Province of the Arabian Peninsula are of sedimentary, not igneous, rock which means that while the steatite vessels and objects could have been made locally, it was much more probable that the raw material was imported via the Island of Tarut to the Eastern Province from Oman, this being the nearest possible source. Similarly, Najd and Yemen could be the possible sources of supply for the South-Western or Central Region.

Stone ware (dull grey to dull black ware, Type I) as referred to by G.C. Thompson occurs only at Hureidha, two examples of this type having been found at Adyat al-Sultan (see under Ware Type I of Hureidha Pottery).

Black glazed pottery of the very finest ware (Type J) occurs only at Bahrain and Thaj (for a detailed study, see under Ware Type J of Bahrain Pottery in Chapter IV). This ware was certainly imported to the Eastern Region since as we have already seen the early Phase 1 of Zubaidah yielded only a very coarse primitive pottery (for a detailed study see under Ware Type A of Zubaidah Pottery). No parallel occurs at any other Arabian site. Only at Hureidha a slightly similar ware of pinkish-red but with finer grits occurs, but the parallel is doubtful since the coarse pottery from Zubaidah seems to belong to the earliest period there. A

unique sherd wih black grits of metamorphic rock was found at Zubaidah (for details see under Temper and Black Grits in Chapter 1).

It has already been pointed out that the site of Zubaidah lies in an area of sedimentary rocks, mostly limestone and sandstone; there are in fact no metamorphic rocks whatever nearby. However, there are metamorphic rocks in the Western region of Qasim, in the upper part of the same Wadi at Rimmah. Hence the explanation of the presence of metamorphic particles in this Zubaidah ware may well be that these particles were transported by water from the upper part of the Wadi.

Another significant point is that the black grits in the sherds outnumber the white and red. Now black rocks do not exist in the Zubaidah area or in the vicinity, but they do certainly occur in the western region of Qasim (see Figure 2). The local rocks at Zubaidah are in fact always red or pinkish-red limestone. Here one may well pause for thought - perhaps this unique specimen was imported into Zubaidah from southern Arabia, where there indeed metamorphic rocks. However, it must be stressed that similar material has not yet been found at Hajar bin Humeid or at Hureidha. Nor have true parallels been found in the eastern or northern regions, e.g. at Tuwair. Did this unique and extraneous sample crom then from north-west Arabia, for example from Taima? This could be possible as Zubaidah was very probably on the trade-route from east to north-west. Again, it is indusputable that this sherd is very similar to some examples of Taima pottery which includes some examples of coarse vessels with black, white and red grits.

Plate CIII illustrates the outer surface of a base sherd (c) from Zubaidah and a rounded body sherd (d) from Taima - clearly these are similar. The same Plate illustrates cross-sections of some above-mentioned examples; (a) from Zubaidah is very similar to (b) from Taima. Thse two sections bear a striking likeness, not only in the grits but even in the firing, as both have a light grey, thick core and pinkish-red firing on both sides. Base sherd 4 from Zubdiaah came from layer 13 (probably from Phase 3 of Trench IV) but the parallel sherd came from the surface collection from Taima. The Zubaidah sherd is probably of the late "Hellenistic" period, according to C14 dating, but the Taima sherd is undated as yet. It could to hazard a conjecture, be of about the same date, a little earlier or later perhaps, but this is uncertain. Whatever the date the fact remains that an unmistakeable similarity exists between the two pieces; it may be that this piece, Base 4 was imported into Zubaidah via the caravan trade route in the Hellenistic period.

Surface Finish

The surface treatment of the pottery has been discussed adequately in detail in the course of the descriptions of the uield of each site (see above). It is, however, noteworthy here that a white or pale yellow, or sometimes black slip or wash on the outer surface, and a red one on the inner surface, are the typical features of the Hellenistic pottery in the eastern region. A similar treatment also occurs at Zubaidah, Tuwair and Yamama (Kharj). Pl.CVI - (a) illustrates the example from Zubaidah.

Glaze, on one or both surfaces, in pale blue, green or white is also "Hellenistic" and occurs commonly in the Eastern

SITES

SITES	Surface Finish	Decoration
	Plain	
	Slip	
	Wash	
	Burnishing	
	Glazing	
	Black Glazing	
	Applied Ornaments	
	Painting: All over	
	Painting: Band below rim	
	Painting: Design	
	Incision: Straight Horizontal Line	
	Incision: Wavy Line (zigzag)	
	Incision: Vertical Dash	
	Incision: Straight Horizontal Combing	
	Incision: Vertical Combing	
	Incision: Wavy Combing	
	Incision: Diagonal Line	
	Incision: Saw Tooth	
	Incision: Thumb or Finger Impression	
	Incision: Thumb Nail Impression	
	Incision: Impressed Circle or Dots	
	Incision: Impress Triangle	
	Incision: Straight Railroad Track	
	Incision: Wavy Railroad Track	
	Incision: Grabbed Drops	
	Incision: Stamped	
	Incision: Cheques or Lozenges	
	Incision: Herring Bone	
	Incision: Cross Hatch	
	Incision: Chevron	
	Incision: Rope	
	Incision: Chain	
	Incision: Horse Shoe	
	Incision: Crescent shaped impression	
	Incision: Piecrust	
	Incision: Inscription	
ZUBAIDAH		
HAJAR BIN HUMEID	×	× × ×

Province while some similar examples are also found at Tʿwair, Layla and Zubaidah. Pl. CVIII - a, b, c, illustrate the glazed examples from Zubaidah (for details, see under "Glazing" in the pottery of each site, and see Table 21 for the distribution at the sites of Arabia).

Only one example is found at HBH, a lid-glazed ware (Pl. LXVl - 73), while there is a total absence of glazed pottery at the other Arabian sites.

The most common surface treatment in the south-western region is burnishing in various styles; these can all be seen to advantage in the pottery of HBH [166] (see Van Beek, HBH, Pl. 30, a, b and e). For discussion of burnishing see under Burnishing of South Arabian Pottery.

Burnished ware also occurs in the Eastern Region but it is rare; it is equally rare at Tʿwair (Parr At.2, Pl. 32-41 and Pl. 33-46) and Yamama (Kharj) (J. Zarins, Atlal.3, Pl. 23 - 138-144).

It is by no means certain whether burnishing was or was not common at Zubaidah (see the discussion under "Surface Finish of Zubaidah Pottery"). Pl.CVII a, b, c, d and e illustrate the burnished examples at Zubaidah. By fare the most common type in the Aflaj region is a fairly soft, but well-made, red ware, with either a black or green smooth shiny surface. This type of specific surface treatment is unique and does not occur at any other Arabian site. J. Zarins has reported [167] that two pieces of this Layla type ware with a brownish-black cast were found on the surface at Tuwair.

Decoration

The most common decoration in Arabian pottery is incision in various designs. The most common style of incised decoration in

in the Eastern Province is the saw-tooth decoration (D. Potts, At.2 Pl. 14 - 165, Bibby PSEA, Fig. 17). This style is also found at Tuwair (Parr et al. At.2., Pl. 34-54) and can be seen on two examples from Wadi Dawasir (Pl.XXlll - 197) while a rather similar decoration in zig-zag shape can be seen on an incense burner from Zubaidah (Pl.LXXll - 1). This saw-tooth style does not occur at Khuraibah or in the south-western region.

A decoration of an incised wavy line or lines is commonly found at most of the Arabian sites, while a decoration of single or double straight lines is common in south-western Arabia. A similar decoration is also found at Zubaidah. Pl.LXXIV - 1-3 illustrates the examples from this latter site and Pl.Llll - 110-112 the examples from HBH. Plate LVlll - 129 illustrates the example from Tuwair which is obviously very similar to the example from Am Jabalain (Harding AAP, Pl.IV - 21).

Undecorated plain painting (without designs), in black, cream or white on red on the outer surface and in red on red on the inner surface is a constant characteristic of the Hellenistic ware so common in the Eastern Region (for details see under "Painting" for each Eastern site in Chapter IV . Similar examples are also found at Yamama (Kharj) (J. Zarins, At.3., Pl. 23 nos. 138-144) at Tuwair (Parr et al. At.2. Pl. 35-55) and at Zubaidah (Pl.CV d - g).

The other common style of painting from the Hellenistic sites in the Eastern Region is the painted band, 1-2 cms in width below the rim, on the outer or inner surface (see under Painting of Eastern Pottery). But several examples occur at Zubaidah as well (see discussion under Painting of Zubaidah Pottery).

Plates CVll, d, and CXlV a-g, illustrate such painted bands at this site; one example is found with deep red paint all over (Pl.CXV a, b) on a fine, thin red carinated bowl, commonly assumed to have been imported to Zubaidah from the Eastern Province, because it is typically "Hellenistic". However, although very similar to those found in the Eastern Province, in fact it was not imported but locally made, thus indicating that the potter at Zubaidah during the Hellenistic period, Phase 2 of Trench III, had reached a high standard of skill in pottery technique having clearly been influenced by the Hellenistic centres of the Eastern Province.

These "Hellenistic" painted types do not occur at Khuraibah and in South Arabia. At HBH, painted designs are common, but do not occur in the Eastern Region or at Zubaidah (see Van Beek, HBH, Pl. 35 - c, and Pl. 36 - b, d). The most common type of decoration in the Khuraibah pottery is the painted type in vertical and/or horizontal lines or cross-hatching (see under Khuraibah Decoration). Similar painted examples are not found at any other Arabian site.

The other common decoration in south-western Arabia is the inscribed or raised inscribed type (Pl.XXV - 204 from HBH, Pl.XXVl - 209, Pl.XXVll - 211 and Pl.XXIX - 219 from Hureidha). Incised inscriptions can also been seen on some of the pottery of the Eastern Region, but only very seldom (Pl.XLVlll - 93 is from Thaj, while Pl.LV - 117 is from Bahrain). Only one example, with two incised letters, ϒ ן . (Pl.CXll - b) occurs at Zubaidah.

The above discussion of the main characteristics of the pottery of the various regions of Arabia enables us to make tentative suggestions concerning cultural links between those regions

during the period of one thousand years or so before the coming of Islam.

It would seem that communications in Arabia were not the same at all times but changed according to economic and political circumstances. Relations between one site and another depended also on the geographical situation, whether or not they were located near major trade routes and developed settlements, or whether the site itself had sources of water or not.

However, before any further discussion of pottery links, it is important to point out that the absence of any parallels in the pottery of certain sites and regions does not necessarily mean that there were no cultural links between these sites, since once there was a settlement anywhere in Arabia, it had to be linked socially and economically with other communities for survival, otherwise, there could be no settlement.

The absence of any specific pottery parallels could be due to the fact that most Arabian sites are still unexcavated and archaeological evidence is still meagre. This is particularly true of Zubaidah in its earliest Phase I when there are apparently no parallels in the coarse pottery.

2. GENERAL CHARACTERISTIC OF THE POTTERY BY REGIONS

It is necessary to point out that the various sites in the Arabian Peninsula have been here grouped geographically, but that this geographical grouping is in fact different from the one which is based on the pottery itself, as appears from a study of the various sites which have been examined, and from which it is, of course, possible to assign these sites to various groups or

regions, on the basis of the similarity or dissimilarity of the pottery.

Region 1 (South Western Arabia)

Hajar bin Humeid

Hureidha

The sites of the Harding Survey

Al-Fau

Wadi Dawasir

Although the two latter sites (Al-Fau and Wadi Dawasir) lie geographically within the Central Region of Arabia, (Region 2) these are grouped in the South West Arabia Group (Region 1) and this is because the general character of their pottery, particularly in the fabric and some styles of base, shows a close resemblance to that of the South Western Pottery. Native South Western Pottery (Wadi Dawasir pottery is not here included) is possibly entirely hand-made, but, at the same time, some exceptionally fine sherds found here are certainly wheel-made and perhaps were imported, but from which direction in Arabia is not yet certain. The Wadi Dawasir pottery is undoubtedly wheel-made without exception. The characteristic bowl types in South-Western Arabia are types 60 and 61 (Pl.XXXlll nos. 231-232), goblet and water cooler with typical South-West Arabian tall stem base and with straight or flaring trumpet-shaped foot; parallels have not been found in any other region of Arabia so far. The other base types common all over Region 1 are 'ring base' type 8a (Pl.LXll nos. 49-50) and types 9a, b, and c with the high pedestal base. Type 8a is rare in the Central Region (Region 2) and at Zubaidah (Region 3) while types 9a, b, and c(Pl.LXll and LXlll nos 52-61) are all

equally common at Zubaidah. Not all these types appear in the Eastern Region (Region 4), at Tuwair (Region 5) and at Khuraibah (Region 6); flat and very low ring or concave bases are rare in Region 1 while on the other hand, they are very common in the Eastern Region and Zubaidah (Pls. LIX - LXII nos. 1-45). The other common form-feature of this region (not including Wadi Dawasir) is the lid-ledged vessel (Bowl-types 27 Pl.XXI no. 190 and Pl.XXVIII no. 216), while it is rare in the Eastern Region, very rare at Zubaidah, and does not occur at all at Tuwair or Khuraibah. Jars with horizontal and vertical long lug handles are common in Region 1 (but rare at Wadi Dawasir). See Pl.LIV no. 116, Jar-type 44 and Pl.LVII, no. 126, Jar-type 52. These two types, remarkably enough, do not occur in the other regions of Arabia.

By far the most common type in Region 1 is the chaff-tempered ware, and it may have a red, brown or black surface and usually has a porous black or grey core. It is equally common at Zubaidah, but less common in Layla-Aflaj and Kharj areas, and actually very rare at Tuwair. Although it also occurs at Ain Jawan in the Eastern Region, rarely, it does not occur either in the rest of the Eastern Region or at Khuraibah.

As regards the surface treatment, the most common feature in Region 1 (but perhaps not in Wadi Dawasir area) proves to be burnishing in various styles. It is rare in Central, Eastern and Tuwair Regions. It occurs at Zubaidah too, but it is not certain whether or not it is common here, (See below Region 3), while glazed ware is very rare in this region (South Western). The presence of a very few samples of glazed ware, however, suggests the possibility of importation; but from which region of Arabia

is doubtful, whether from the Northern or from the Eastern Region, in both of which regions "Hellenistic" (later) Roman/Nabataean pottery is found.

Again, the most characteristic features of the decoration in Region 1 (but no in Wadi Dawasir) are the incised and applied raised inscriptions on the vessels, and the ornamental animal figurines, both on the vessels and on the lids (Pl.XXIII no. 198, Pl.XXVII, no. 211 and Pl XXVIII Nos 214 and 215). Inscribed vessels are rare in the Eastern Region and very rare at Zubaidah, while they do not occur at all in Central Region, Khuraibah and at Tuwair.

REGION 2 (Central Arabia, CR)

Layla-Aflaj area

Kharj (al Yamama) area

The sites of the Intermediate Area (between Kharj and Layla-Aflaj)

The most characteristic bowl type in the Central Region is the medium-depth open bowl with triangular overhanging rim, black or green surfaces (type 4c Pl IV No 35). Triangular overhanging rim vessels are also common in the Eastern Region, but very rare at Zubaidah, and non-existant at al-Tuwair and Khuraibah.

The pottery of the Kharj area is characterized by a coarse yellowish-buff ware (Fabric type FIII), usually in the form of an open bowl with triangular overhanging rim (B.Type 4C). Only one site in the Layla area, 212-67, produced this type of ware. The type also occurs in the Intermediate Area, but no parallels are found in any other region in Arabia. In the Aflaj region the most common ware is fairly soft, but well-made, red ware with either black or green

shiny surface. This type is rare in Kharj and the Intermediate Area, while it is extremely rare in the Wadi-Dawasir area of Region 1. It does not occur at all in any other region of Arabia.

The most common decoration in Central Region is the wavy combing, which, be it noted, is less common in the Eastern and Southern Region and does not occur in Zubaidah, Tuwair and Khuraibah Regions. The red painted, burnished ware, typical of the Eastern Style, is rare here. A particularly interesting piece from site 212-60 is made of a fine orange paste, and is most skilfully decorated above the base with two registers of finely incised long vertical wedges (J.Z. At.3 Pl 126 No 229). This unique sherd is almost identical with several pieces from Antioch-onOrontes (Waage 1948: Fig 23-2, 4, 5, 6) thus falling into the category of "Miscellaneous Rome Tableware". No parallels to this type are found in any other region of Arabia so far.

Region 3 (Qasim Region)

Zubaidah

The site of Zubaidah lies geographically in the Central Region and administratively in the Qasim Region. Since the general character of the pottery of this site differs considerably from that of the Central Region, this site is grouped separately and not included within the Central Region; it is here referred to as the Qasim Region.

The most common form-feature of Zubaidah pottery is the club-rim in both Jars and bowls; see Types 11a, 11b (Pls X and XI nos 96-99). Type 14c (Pl XV nos 133-140) and type 23a (Pl XX nos 180-3). Types II and IIb are equally common in the Eastern Region, while type 14c is rare here. All the above-mentioned types are rare at Tuwair and in the South Western Region, and do not occur in Khuraibah and in the Central

Region. The other common types on Region 3 are types 10a, b and c, which are equally common in the Eastern Region, but rare in the Central Region and do not occur in Khuraibah, Tuwair and South Western Region. Bowl type 9d (Pl IX no 83) is a very rare type in this Region 3 (Zubaidah), while it is very common in the Eastern Region, and also occurs in the Central Region, but rarely. Bowl types 19a and b (Pl XVIII nos 164 and 165), with pronounced edge inside the rim, are also rare in the Zubaidah Region, while they are very common in the Eastern Region; Type 19a is also a rare type in the Tuwair Region. Both types 19a and b are non-existent in the other regions of Arabia. The most characteristic Jar type in Region 3 is the wide open heavy one 12a (Pl XLIII and XLIV Nos 71-74). Similar wide open jars are also commonly found in the South Western Region (2) and rarely in Khuraibah (Region 6) but do not occur in the Eastern and Central Regions. And here we may add that the most common bases, as mentioned above under Region 1, are the pedestal, flat and concave bases.

By far the most common fabric type in this Region 3 is the chaff-tempered ware, which comes in a variety of shapes, and may have a red, brown, black, white or cream surface, and usually has a porous grey core. (for the distribution of this fabric type, see above in this chapter under Region 1). Sandy ware types Dl and DII are also common in this region 3, perhaps also in the Eastern Region (Region 4) but less so than at Zubaidah. They are rare in the South Western Region and in the Central Region. The fine sandy ware Type E is a rare one in the Zubaidah Region, but parallels are common in Tuwair, a fact which supports the hypothesis that there was a pottery link between these regions, especially in view of the great similarities not only in the fabric but also in the workmanship of the vessels and in the surface

finish. This type also occurs in the Kharj area (Region 2) but rarely. Cream ware, Types FII and Fi (glazed), are rare types in this Region 3. Both types are also rare in the Central and Tuwair Regions, and both again are very rare in the South Western Region (Region 1).

Burnishing also occurs, to be sure, in the Zubaidah Region; but it is not certain whether this surface treatment was common here or not. Some indications, however, suggest that perhaps it was, as it certainly was in the South Western Region, for instance, the presence here of burnished sherds in different layers throughout the strata. It is, of course, undeniable that in some layers the hitherto discovered burnished sherds do not amount to more than one or two, but this scarcity could well be due to the very limited excavation. The other indication that burnishing was much commoner at Zubaidah than has been thought is the presence of some eroded sherds with brick red slip, still leaving some traces of shiny burnished strokes. Some other sherds are very severly eroded, but, here too, the slip and the fabric are very similar to those of the obviously burnished sherds, and, again, the remaining surface of the slip is very smooth, which suggests that probably these too are burnished sherds, but that their the burnishing cannot be identified, owing to severe erosion. If this assumption be correct, it means surely that burnishing was as common at Zubaidah as it was in the South Western Region (Region 1), or only slightly less so. If such be the case, the question may here be raised; does such burnished pottery also occur, more commonly or less rarely than formerly held, in Wadi Dawasir, Layla-Aflaj and the Kharj areas, seeing that all these areas lie between the two above-mentioned regions, Regions 3 (Zubaidah) and Region 1 (South Western Arabia)? But this fascinating question cannot in fact be answered at present, because all the material currently available from

these areas came from the surface collection, and much of it is badly eroded. In the Kharj area only a few burnished sherds were found, which seemed to suggest the "Hellenistic" style. No other burnished sherds in the South West Arabian style have yet been found during the surface collection and no further achaeological work has been done. It is, therefore, difficult to make any firm assessment of the presence of burnished pottery in the above-mentioned areas.

Glazed ware in the Eastern Region style is rare at Zubaidah, and whether it was imported from the Eastern Region or locally made is debatable; see below under Region 4. The most common decoration is the incised one, particularly in straight and wavy lines, as is the case in all other regions of Arabia. Painted ware in dark red paint on a fine reddish-buff surface, in the Eastern Region style, is very rare, and may be assumed to be imported from the Eastern Region, while painted band designs in red, black and green paint, in the Eastern Region style, are probably common and may be assumed to be locally made. Similar painted wares are very common in the Eastern Region, while they are distinctly rare in the Tuwair Region and do not occur in the Central, South Western and Khuraibah Regions.

From all the above discussion it emerges that the pottery links between Zubaidah and the South Western Region via the Central Region were closer than those with any other regions, perhaps throughout the Zubaidah history (see evidences in this chapter). But it may also be that in the later period the pottery links with the Eastern Region (Region 4) became stronger than those with any other region; and perhaps in this same period there were also links with Tuwair (see evidence in this chapter). There are no evidences at present of any links with

the Khuraibah Region. Zubaidah was perhaps also linked with Taima, if we may infer this from the presence of the black grit-tempered sherd, very similar to that from Taima (see discussion in Chapter 1).

Region 4 (Eastern Arabia)

Bahrain

Failaka

Thaj

Ain Jawan

The sites of the Saudi Arabia Comprehensive Archaeological survey.

Almost all the pottery from the Eastern Region is wheel-made and well fired, with a few exceptions. The most common bowl type in this region is Bowl Type 9d (the offering bowl), which is rare in the Central Region, very rare at Zubaidah and does not occur at Khuraibah, Tuwair and the South Western Region. The other common type is the cooking bowl with pronounced edge inside the rim (Type 19a, b); see above in this Chapter under Region 3 (Zubaidah). Other common types are the carinated bowls with everted or thickened rim (Type 3c, Pl.II, No 22, Type 3d, e, f, and g, Pl.III nos 23-26). There are rare at Tuwair, very rare in the Central Region, and do not occur at Zubaidah, Khuraibah and in the South Western Region. The other characteristic feature of the Eastern Region pottery is the Incense Burner, which is also found at Zubaidah, in the Central Region and in the South Western Region, but does not occur at Tuwair and Khuraibah. Glazed cream ware (Type FI) is a common type in this region, while it is rare at Zubaidah, Tuwair and in the Central Region, very rare in the South Western Region and does not occur at Khuraibah. Black burnished fine ware (Type J) is found in the Eastern Region only at Bahrain and Thaj and does not occur in any other region of Arabia, according to our present knowledge. Very typical of this

region, is the black, cream and white slip, or paint on the outer or inner surface. Among the most characteristic forms of decoration here is the "saw tooth" which is rare at Tuwair, and in the Central and South Western Regions, while it does not occur at Zubaidah and Khuraibah.

Region 5 (North Western Region)

Tuwair

All the vessels from Tuwair are consistently of excellent quality, wheel-made, well levigated and fired. One of the common bowl types here is Type 3f carinated bowl (Pl.III, no. 25), Bowl 19a (Pl.XVIII) in the Eastern Region, and a fine sandy ware (Type E), which is a rare type at Zubaidah and in the Kharj area. The most striking feature of decoration here at Tuwair is the incised saw-tooth or falling-leaf pattern on jars and bowls (Pl.Lno. 100). In general, it can be fairly maintained that, although the Tuwair pottery bears some Nabataean aspects, it is on the whole very similar to the Eastern Region pottery. And the pottery links with the Eastern Region are closer than with any other region of Arabia.

Region 6 (Northern Region)

Khuraibah

One of the striking features of Khuraibah pottery is the wide open large bowls (Pl.XXXI, nos 224-226). But the most characteristic feature here is surely the large vessels, which, in general are undecorated, while the small vessels, particularly of fine ware, are in general painted in black and red in different designs. (See Chapter VI under the Painting of Khuraibah Pottery). No parallels to this Khuraibah pottery have been found so far in any other region of Arabia. Broadly

speaking, it can be said that the whole tradition of Khuraibah pottery differs strongly from that of most Arabian pottery, even from that of the South Western Region. The most common fabric in the South Western Region, as has been mentioned, is the chaff-tempered one, while at Khuraibah this type does not occur at all, very probably because traditionally there were certain commercial links between the South Western Region and Khuraibah, as is evidenced by the presence of the South Western inscriptions at Khuraibah. The absence of any tangible pottery links between them is at present problematic.

However from the above discussion it appears that there are indeed pottery links, more or less clear, between the several regions of the Peninsula; but it is not yet certain what the relative degrees of affinity between these regions really were. The initial evidences (see above) at Zubaidah and Ṯwair suggest that their pottery links were closer with the Eastern Region in the later period than with the South Western Region; but other evidences at Zubaidah suggest that after the major abandonment period at Zubaidah the pottery links with the South Western Region via the Central Region were stronger than with the Eastern Region. The clear evidences of Hellenistic style in the Central and South Western Regions suggest pottery links between the South Western and the Eastern Regions via the Central Region. These seem to be borne out by the presence of the South West Arabian inscriptions at Thaj, which were published by Dickson (see Dickson 1948).

It is well to point out at once that, although the Khuraibah Region played an important role in ancient trade and was once a Maenaean commercial colony, no apparent pottery links with the other Arabian Regions have at present been established; perhaps further achaeological activities in Arabia may throw some much needed light on this vexed question.

NOTES

1. Van Beek "Hajar Bin Humeid"(Baltimore,1969)
2. Peter J. Parr et al Atlal 2 pp 44-47 1978
3. As Saiyari p.175
4. " " p.178
5. Al Hamadani "Sifat Jazirat al-Arab" p 144 (Dar al Yamamah Publication (Riyadh, 1977)
6. Al-Uboudi M. Nasir "M.G.B.Q." Vol.1 p.24 Riyadh 19
7. " " " " Vol.1 p.25 "
8. " " " " Vol.2 p.571 "
9. " " " " Vol.1 p.74 "
10. " " " " Vol.3 pp.1097-8
11. Peter J. Parr et al Atlal 2,p.44
12. Peter Parr & M. Gazdar Atlal 4, p.108
13. For a detailed study of the Stratigraphy of Trenches I and II at Zubaidah see Peter Parr et al At 2,pp.44-47
14. For a detailed study of the stratigraphy of Trenches III and IV-V at Zubaidah see Parr & Gazdar At 4,pp.107-115
15. Thompson G.C. T.M.T.H p 115
16. Bhutta M.A. "Preliminary Report on Cement Raw Material in the Unaizah", Petromin(Saudi Arabia p,203)
17. Parr et al Atlal 4,p.116
18. A Qirba is a skin bag which is very small and usually tied up with skin strings
19. P.J. Parr et al Atlal 2,p.46
20. Dibs is the juice of the date usually produced by squeezing dates in a spouted basin called Jish.Shah.

21. Al-Uboodi M.N. "M.G.B.Q." Vol 3 pp.1097/8-1980

22. Al-Bassam Gardens are located west of the ruins of the main site nearby the Trenches IV-V which is known as the abandoned palm grooves.

23. For a detailed study of the Kingdoms of South West Arabia see Brian Doe "Southern Arabia" 1971

24. For a detailed study of the Sabaean Kingdom see Doe "Southern Arabia" pp. 74-97

25. Bent J.T. "The Sacred City of Ethiopians" London

26. Doe B. "Southern Arabia" p. 78

27. For a detailed study of Qatabanian Kingdom see Doe B. "Southern Arabia" pp 70-74

28. For a detailed study of Minaean Kingdom see Doe B. "Southern Arabia" pp.66-70

29. Doe B. "Southern Arabia" p.69 1971

30. Wissmann - Himyar Ancient History Le Museon 77, 3-4 pp.429-98

31. For a detailed study of the Himyar Kingdom see Doe B. Southern Arabia pp. 74-94

32. For a detailed study of the Hadramaut Kingdom see Meulen and D von Wissmann "Hadramout" Leiden 1932

33. George Zaidon "The Arab before Islam" pp. 170-4 Beirout 1974

34. Doe D.B. Husnal Ghurab and the Site of Qana 74 1-2 1961

35. For a detailed study of Christianity in South-West Arabia see J. Spencer Trimingham "Christianity Among the Arabians" pp. 281-307

36. Wissmann 'Himyar Ancient History' (Le Museon, 77 3-4, 1964) p. 492

37. For a detailed study of the H.B.H site see Van Beek "Hajar Bin Humeid" 1969

38. Van Beek, HBH p. 4. 1969

39. " " " p. 4-5, 1969

40. For a detailed study of the pre-Islamic Pottery of HBH see Van Beek, 1969. pp. 115-172.

41. For a detailed study of chaff tempered pottery of HBH see Van Beek, 1969 pp. 89-90

42. V. Beek 1969 p. 89

43. " " " pp. 90-91

44. " " ". p. 161

45. " " ". p. 90

46. " " ". p. 165

47. " " ". p. 91

48. " " ". p. 92

49. For a detailed study of the Method of Manufacture of HBH see V. Beek 1969 pp. 86-89

50. For a detailed study of the Surface Finish of HBH Pottery see V Beek 1969 pp. 93-94

51. V. Beek 1969 pp. 95-6

52. V. Beek 1969 p. 171

53. For a detailed study of the Decoration of HBH Pottery see V. Beek, pp. 96-9

54. V. Beek 1969, p. 100

55. V. Beek 1969 p.355

56. For a detailed study of the Chronology of the Site of HBH see V. Beek 1969 pp.355-365

57. V. Beek 1969 p.356

58. For the Summary of Chronology Data see V. Beek 1969 pp. 364-5

59. V. Beek 1969 p.358

60. " " " p.360

61 " " " p.360

62. " " " p.362

63. " " " p. 362

64. For a detailed study of Hureidha Site see G.C.T. "T.M.T.H"

65. For a detailed study of the excavation of the Moon Temple at Hurreidhah see G.C.T. "T.M.T.H." pp. 19-43

66. For the Tomb Excavation see G.C.T. "T.M.T.H." pp. 65-93

67. For a detailed study of the Chronology of the Site of Hureidha see G.C.T. "T.M.T.H." pp.149-154

68. G.C.T. "T.M.T.H." pp 58, 60 and 150-1

69. " " pp.103 and 151

70. " " pp. 93 and 94-7

71. " " p.153

72. For a detailed study of Hureidha Pottery see G.C.T. pp. 115 - 131

73. G.C.T. "T.M.T.H." pp.115-6

74. " " p. 116

75. For a detailed study of the Sites of Harding's Survey in South West Arabia see G.L. Harding "A.T.A.P." 1964

76. Harding 1964 p. 20

77. Harding 1964 p.23

78. " " p.44

79. Chapman 1978 p.37

80. Emery 1965

81. MacDonald et al 1975

82. Harrison 1964

83. MacDonald et al 1975

84. Hotzel et al 1978 p.226

85. Field 1971; Sordinas 1978

86. For a detailed study of the Tumuli in Layla Ablaj area see J. Zarius At 3 pp.26-7

87. J. Zarins At 3 1979 p.22

88. " " " " " p.28

89. " " " " " p.29

90. George Zaidan "The Arab before Islam" p.90

91. Ibid

92. Yaqoot, Mu'jam al-Buldan Vol.4. P.541

93. George Zaidan 1974 p.90

94. Al-Hamadani p.14)

95. George Glaser pp.124-230

96. Glaser G. pp.89-90

97. J. Zarins et al At 3 1977 p.32

98. " " " " " " " p.32

99. " " " " " " " p.33

100. a. At Zubaidah only Incense burners are found, but no stone ware

b. See Parr et al At 2,1978 Pl.37 No 123-4

101. Dickson and Dickson 1948

102. Van Beek/HBH Fig 117 and Pl 52 1969

103. Cleveland 1965 - 102

104. J Zarins 1979 At 2 p 32

105. a. Amir M. 1925 p. 136

b. O'Leary 1927 p. 106

106. a. D. Potts et al At 2, 1978, p 8

b. For a further details see Bukholdar, 1972, Masri 1974 and Oates 1976

107. Kingdom of Saudi Arabia (Stanby Introduction London 1977)

108. Millowan M.I.L. Iran, Vol III "The Minaeans Ancient Trade in Western Arabia" p. 2

109. Rawlinson G.H. "Intercourse between India and the Western World from Early Time to the Fall of Roman" p. 6

110. Green Pet"Alexander the Great" 1977 New York pp. 221 - 256

111. Sir Arnold T. Wilson "The Persian Gulf" p. 46

112. Miller 1977 James 1965 9, 13--4 Cook et al 1930, 142

113. Rostovtzeff "S.E.H. of the Hellenistic World" p. 458

114. Rostovtzeff "S.E.H. of the Hellenistic World"pp. 1245-7

115. For a detailed study of the history of this period see

a. Malcolm A.R. Colledge "The Parthians" 1967

b. Georgian Harrmann "The Iranian Revival" Oxford 1975

116. Walter Woodburn p. 203

117. Cook et al "Cambridge Ancient History" 1939, pp. 109-114 and 118

118. For a detailed study of the description and the excavation at Bahrain see Bibby "Looking for Dilmun"

119. Bibby Looking for Dilmun p.169

120. Babra Phippiki, Vases of the National Archaeological Museum of Athens, Appollo Edition p.5

121. Bibby p. 112

122. " p. 162

123. For a detailed study of the Site of Failaka and the excavation see "Bibby Looking for Dilmun" and Failaka Report

124. Failaka Report

125. Bibby "Looking for Dilmun" p.329

126. Otta Markholm, Failaka Report "Greek Coins from Failaka" p.1-2 1960

127. Otta Markholm 1960 p. 4

128. Bibby p.240

129. The lamps in Greek style are not included in the above survey but the relevant photographs are published in the Report of Failaka Excavation 196) pp. 81 and 83

130. For the location of the site of the Eastern-Arabia see D. Potts et al At 2 Pl 1

131. D. Potts et al At 2 p 11

132. For a detailed study of the Site of Thaj and the sounding see Bibby "P.S.E.A." 1968

133. Bibby 1968 p. 14

134. For a detailed study of the Islamic History of Thaj see Mandeville 1963

135. Bibby 1968 p. 13

136. Bibby 19 Looking for Dilmun p. 368

137. Bibby 1968 p,18-9

138. Lapp Paul W "Observation of the Thaj Pottery" BASOR p 172 1963

139. Parr P.J. 1964

140. Riis P.J. 1964

141. Bibby 1968 pp. 24-5

142. " L.D. p, 368

143. " " p. 329

144. Dickson "Thaj and other sites" Iraq September 1948

145. Bowen BASOR 17-23 Supplementary Studies Nos 7-9 "The Early Arabian Necropolis, Ain-Jawan" 1986

146. For a detailed study and plans see D. Potts et al At 2, p 21 Pl 7

147. For the published materials see D. Potts et all At 2, Plates 9-17

148. For details see F.R. Matson Bason 7-9 195) pp. 57-8

149. Bowen BASOR N 99 195) p. 55

150. For a detailed study of the Site of Tuwair see Parr et al At 2, 1978 pp. 42-4

151. Parr et al At 2, pp. 42-4

152. Adam et al At 1 p. 38

153. Parr et al At 2, p. 43

154. Parr et al At 2, 1978

155. Parr et al "P.S.N.W.A." p. 206

156. Parr et al " p. 204

157. For a detailed study of the Survey of Kheif ez Zahrah see G Bawden At 3, 1979 pp. 63-71

158. Parr et al "P.S.N.W.A." p. 207

159. Winnet and Reed "Ancient Records from Arabian" p. 119

160. Parr et al (PSNWA) pp. 113-4

161. Van Beek H.B.H 1969 p. 92

162. J. Zarins At 2 p 67

163. J Zarins At 3, p. 32

164. V. Beek H.B.H p. 275 1969

165. J Zarins At 2 p. 67

166. For a further detailed study of Burnish see
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167. J. Zarins At 3, p. 32